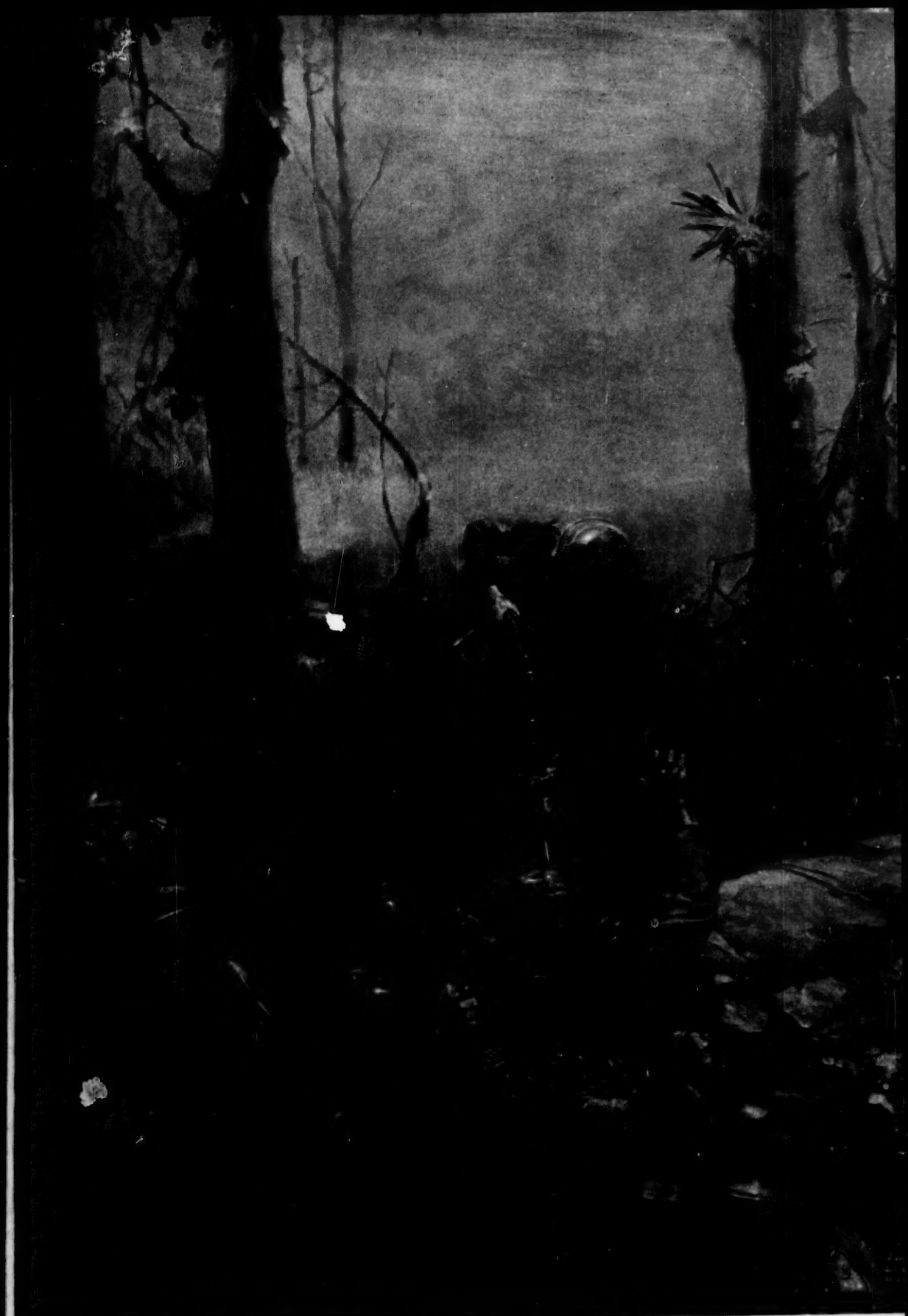

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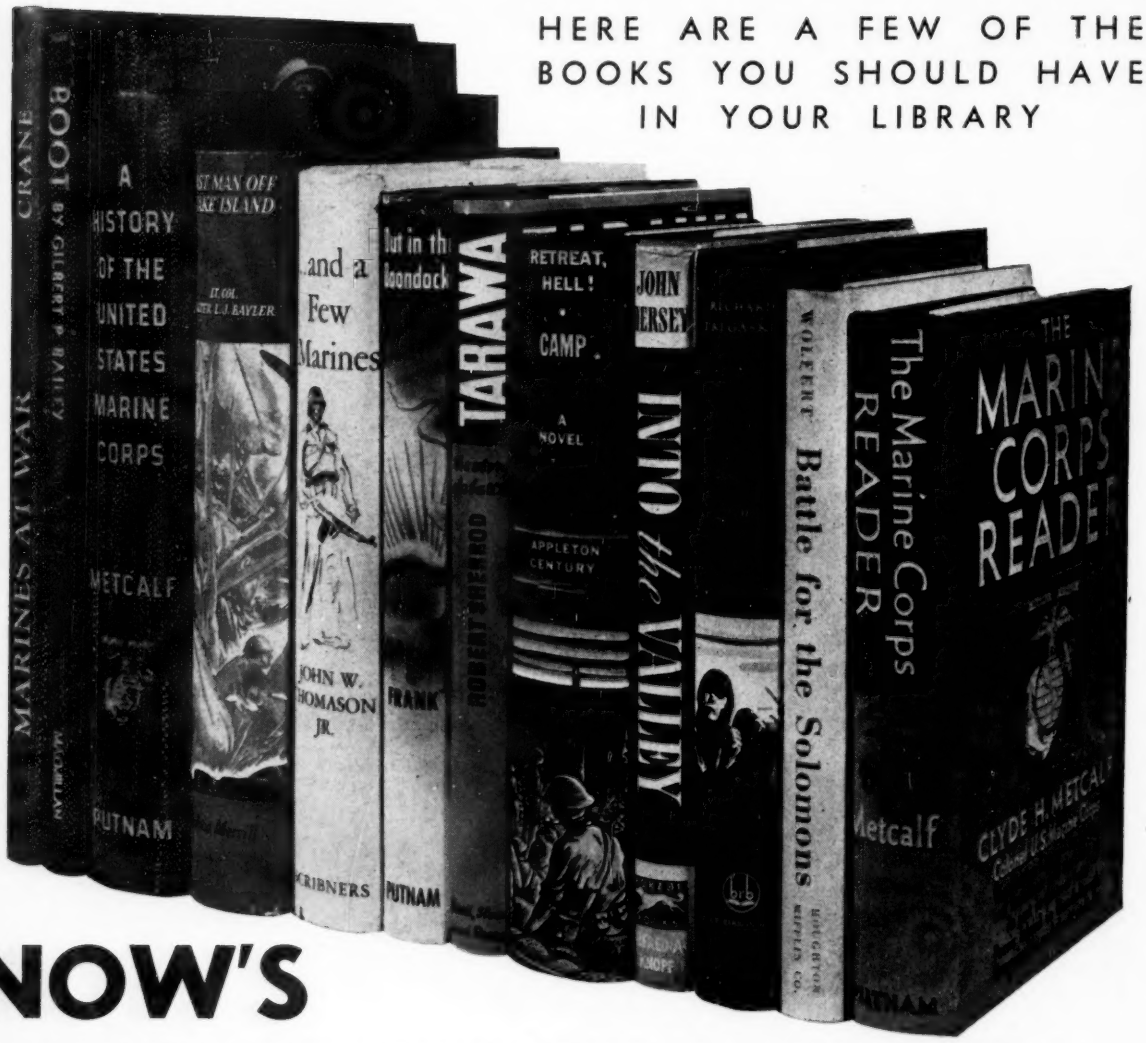

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Gazette

JANUARY 1945

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THIS MONTH'S CONTRIBUTORS

LT. COL. ROBERT E. CUSHMAN, JR., whose "Battalion Landing Teams in Amphibious Operations" won the $500 prize in the *Gazette's* article contest, writes from a background of the combat experience he received as executive officer of the Second Battalion, Ninth Marines. He was a member of the 1935 graduating class at the United States Naval Academy. Following his graduation, Lt. Col. Cushman served in China and at Quantico before the war. In 1941 he was appointed commanding officer of the Marine detachment aboard the U.S.S. *Pennsylvania,* where he remained until joining the Ninth Marines in April, 1942.

JOSEPH M. JONES ("Down to Earth About Colonies") served three years on the Tariff Commission, five years in the Division of Far Eastern Affairs in the State Department as a financial and economic expert, and was with a committee studying the problems surrounding postwar settlements

when he left the State Department in May, 1943. Now an associate editor of *Fortune* Magazine, he is author of "A Modern Foreign Policy for the United States," published last year, and has been studying colonial policy problems the past year.

CAPT. JOHN W. THOMASON, III ("The Fourth Division at Tinian") is the writing Marine son of a famed writing Marine, the late Col. John W. Thomason, Jr. He was educated at points as far separated as Washington, D. C., and Peking, China, and left employment on the Houston (Tex.) *Chronicle* to accept a commission in the Corps in September, 1941. At the present time he is stationed overseas as a Marine Corps Public Relations Officr somewhere in the Pacific.

★ ★ ★

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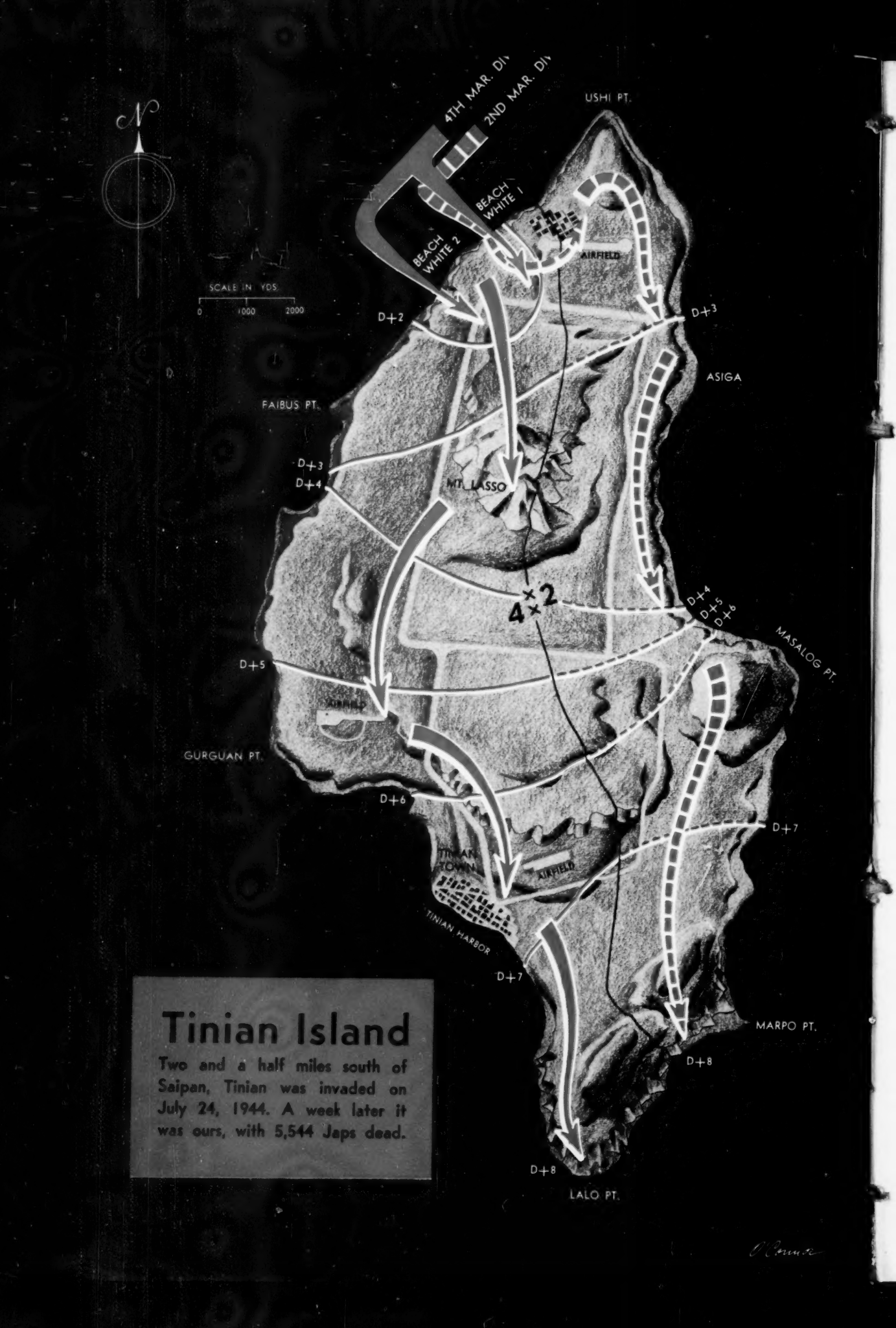


Tinian Island

Two and a half miles south of Saipan, Tinian was invaded on July 24, 1944. A week later it was ours, with 5,544 Japs dead.

The Fourth Division at Tinian

The enemy was prepared for our landing on Tinian, but he was outguessed, outmaneuvered, and outfought at every turn by Marines. ***By Capt. John W. Thomason, III***

This article was written by an observer with the Fourth Division on Tinian, and therefore emphasis is placed on that Division's activities. Equally important in the operation, however, was the Second Division.

THE assault and capture of Tinian Island in the Marianas by the Fourth and Second Marine Divisions took place so close to the Saipan operation in time and geography that there is danger of overlooking the interesting and unique aspects of this first large scale shore-to-shore operation in the Central Pacific.

The Fourth Marine Division, under Major General Clifton B. Cates, made the initial assault over the narrowest beaches yet encountered in the history of amphibious warfare. It took Mount Lasso and Tinian Town. Tired and understrength, it broke the back of Japanese resistance on the island. For these reasons, an account of the operation must of necessity deal with the work of the younger unit.

Not only was the establishing of the beachhead accomplished in record time, but it was done at the cost of fewer Marines than in any previous operation of like size.

A Shortage of Men and Time

The Saipan campaign had been a grueling ordeal for the Marines engaged, and the casualties, killed, wounded, and missing, suffered by the Fourth was the greatest number inflicted on any one of the American Divisions during the advance from south of Charan Kanoa to Marpi Point on Saipan. The bulk of the division had been in the line and advancing for twenty-six days, from D-day on Saipan until the 10th of July. The securing of Saipan saw it below strength and tired, with slightly over fifteen thousand officers and men. Under 700 of those were fresh, but green replacements with no combat experience.

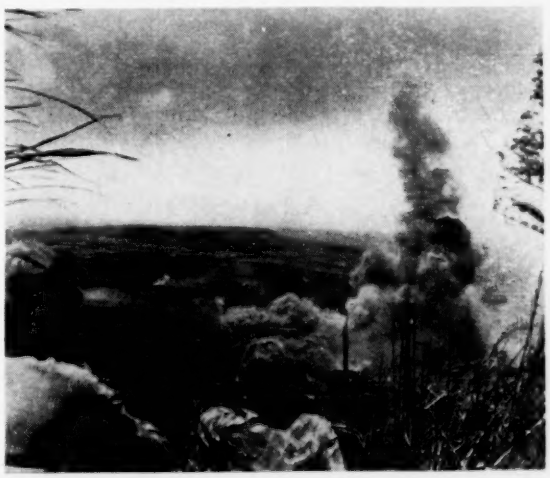
The shortage of men was greatest in the infantry regiments, and there were companies which could not muster half their men at two consecutive formations. Dengue fever, dysentery, and battle fatigue were taking their toll.

After the securing of Saipan, the division had until the 24th of July in which to refit for the attack on Tinian. This two weeks respite was not an optimum time in which to train replacements, reorganize to take care of losses among key personnel, and prepare for an assault on a prepared and expectant enemy holding Tinian. To complicate matters further, the island of Saipan, although secure in United States hands, was by no means cleared of all the enemy troops on it. Disorganized small groups of the enemy abounded and the cleanup period on the island lasted well into the month of August. But, as the records of the Tinian fight show, the two weeks was enough time. Enough time because it was used to the best advantage.

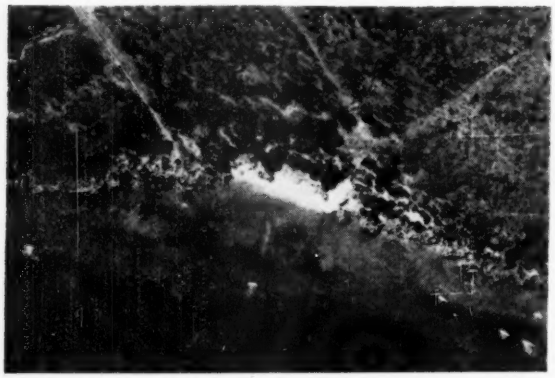
The Problem

To the nine thousand odd enemy troops on Tinian, it must have been obvious that an attack would come sooner or later, and when the Marines hit the beach on the 24th of July, they would meet an enemy who had known that attack was imminent for thirty-nine days. The enemy had, however, been under bombardment by artillery, naval gunfire, and aerial bomb from the middle of June on, with an increasing tempo as the situation on Saipan enabled more heavy guns of the Corps artillery to turn their attention to the southern island. And the impact area of the 155-mm Long Toms firing from Saipan covered fully two-thirds of the smaller island. Almost all daylight movement on Tinian ceased. But the Japanese soldier is dangerous until he is dead and he used every day and night of grace he had.

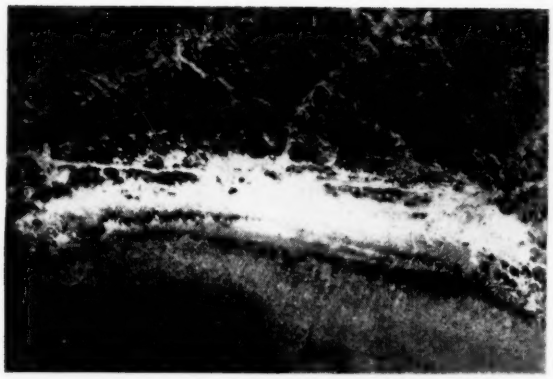
Tinian Island offers the attacker only one



Marines view the shells falling where Japs are cornered on Southern Tinian.

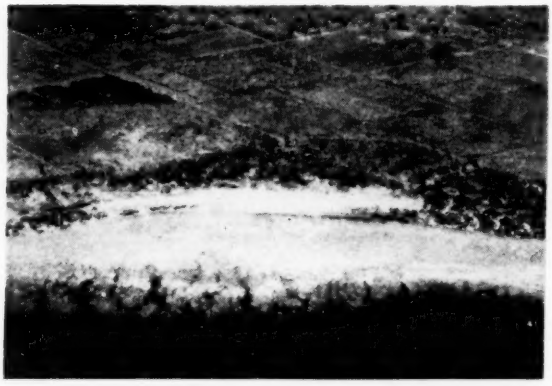


A flat view of Tinian's smallest beach is shown by this vertical aerial photo.



Revealed in this vertical picture is the largest initial landing area used.

An oblique aerial photo shows details of terrain at Tinian's smallest beach.



Valuable additional detail is shown in this oblique photo of the largest beach.

normal beach of any size and suitability for a landing in force. This is on the west coast, in front of Tinian Town. Defenses in this area were elaborate—familiar to anyone who had observed those at Tarawa. Pill boxes at the water's edge were backed up by log and sand bunkers extending well inland. A point of land to the north gave opportunity for a vicious system of cross fires along the length of the beach. Land and water mines studded the beach and covered all approaches. This area, unlike the northern half of the island, was not under observation from Saipan and every feature of the terrain was used to the best advantage for defense. Caves in the cliffs behind the town gave shelter to CPs, communication centers, and heavy guns.

Two More Possible Beachheads

Elsewhere on the island there were two possible landing places. The first in defense priority, as indicated by the extensive Japanese works later overrun there by the Marines, was a beach on the coast of the island, due east of Mount Lasso. Just south of Asiga Point, it was commanded on each flank by high ground. Sea and land mines were emplaced even more thickly here than in the Tinian Town beach area, and the Asiga beach was under 400 yards long.

There was one other area where the Japanese considered a landing possible, but, from the extent of its fortifications, improbable. This latter area consisted of two small declivities breaking the otherwise unbroken coral cliff formation on the northwest side of the island, due west of the Ushi Point Airfield. The northern declivity was some sixty-five yards long, the southern about a hundred and thirty yards. Neither was a "good" beach for landing. Neither afforded any easy means of access to the inland plain of the island, and neither had any area of smooth water off shore. The narrow reefs were fringing from the shore with no lagoon. These beaches were fortified to some extent, chiefly by mines, although very sketchily compared to the Tinian Town and Asiga Bay areas. There were no other landing places.

For his defense of the island, the Japanese had a force of some nine thousand military personnel. The basic force was the 50th Infantry Regiment, a veteran unit lately transferred from the Manchurian area. The three battalions of this regiment, with artillery and the attached engineer and tank companies, numbered about 3,600. At-

tached, and under the command of the 50th's Commander, Colonel Ogata, was the First Battalion of the 135th Infantry. With hospital, motor transport, and such units, the army component of the defense numbered close to five thousand.

The remainder of the force on Tinian consisted of naval personnel of various categories. Although Vice Admiral Kakuda, Commandant, First Air Fleet, was the Senior Naval Officer present, he did not seem to have any hand in directing the naval personnel in the defense of the island, and the exact circumstances of his death are not known. A Captain Oya, nominally in command of the 56th Keibitai (Naval Guard Force), seems to have taken charge of the naval force. The 56th Keibitai was a large bulk of this force; the personnel from the large Naval air establishment at Ushi field was another. Naval gun crews, armed with rifles, and instructed to fight as infantry when their guns were knocked out, formed another source of manpower. It was noted that the troops on Tinian were better individual soldiers than those met on the larger island. The condition of equipment, exceptionally good rifle and machinegun marksmanship, and physical condition of the men argued a high standard of military perfection in the commands under Colonel Ogata and Captain Oya.

Terrain Is In Our Favor

The terrain of Tinian differed favorably from that of the larger island to the north in having less mountainous terrain and only one respectable height. This was Mount Lasso, which rose abruptly in the north central portion of the island, south of a steep escarpment running from east to west across the island. From the 560 foot elevation of Lasso, the enemy had good observation of all three beach areas and the northern plain, although cane fields gave concealment to infantry.

The enemy could be expected to have adequate supplies. His artillery included field artillery, mortars, and naval guns. His occasional fire directed at the southern plain of Saipan indicated the presence of ammunition to spare. There was large naval activity on the island and numerous coast defense naval guns had been spotted from the air. Reconnaissance aircraft had drawn antiaircraft fire from batteries out of range of the large guns on the southern plain of Saipan. Minefields, which had taken a toll on Saipan, could be expected on the southern island. The enemy, then, was prepared and waiting, and, since he was Japanese, there was no chance of his giving up.

The Solution

The Commanding General of the Fourth Marine Division had assumed his duties on July 12th. The landing on Tinian was slated for the 24th. In the two weeks grace there was much to be done, and in spite of the formidable appearance of the beaches there was much in favor of the troops.

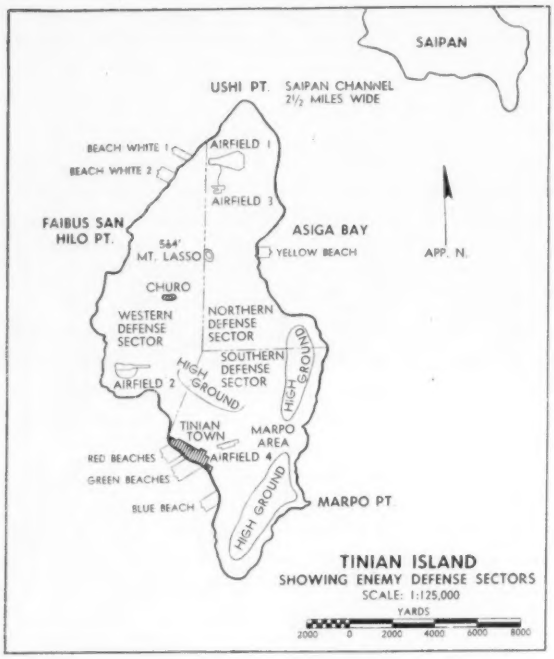
By the end of the Saipan campaign the American forces enjoyed not air superiority, but air supremacy. Continuous aerial reconnaissance and photography of the objective by the regular agencies for such work had been carried on ever since the early days of the campaign in the Marianas. There were relief maps available for study.

But the Division Commander, convinced that a commander of ground troops gets a more accurate grasp of topographical features by actually observing them than by studying photographs, decided to take full advantage of the air supremacy. He arranged for a complete series of reconnaissance flights over the objective, not only by himself and the members of his staff but by all unit commanders. TBFs from carriers were used for these missions and in some cases, wherever it was possible, even company commanders made flights. For the first time in the Central Pacific, a division was prepared to land on an objective which all of its key personnel had observed from the air. The notes jotted down by these officers were to prove invaluable, for in some areas the maps issued were not the most accurate.

Logistics of the Tinian operation were inherently far simpler than those of the first landing in the Marianas, for the base of supplies was Saipan, within five miles of the target island, and it was possible to move the entire division by Landing Ship Tanks (LSTs) and Landing Ship Docks (LSDs), with loading operations completed the night before the landing.

Although a storm made the Tinian landing beaches unusable for anything but special landing craft and a few Landing Vehicle Tanks (LVTs) for four days during the early part

A flame thrower eliminates a pocket of resistance in Tinian's dense underbrush.



The enemy defense system was strongest in the shaded area close to Tinian Town.

of the operation, it came up too late to interfere with initial supply. Transport aircraft, flying constantly between Isley Field and Ushi Field, kept the units on Tinian supplied until the surf abated and boat traffic was resumed.

Use of the Division's organic communication facilities by the Division Commander was obtained by loading an operating command group onto a single LST with all necessary mobile communications equipment. The time consumed in the ship to shore displacement of the CP group was cut by this measure to the minimum time necessary to get vehicles ashore from the LST.

A Question of Beachheads

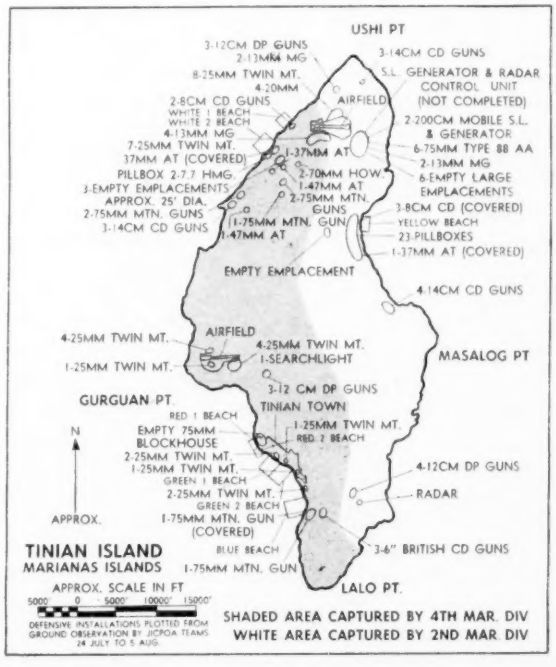
Rifle units with all organizational weapons were allotted LVTs for the assault. The Artillery Regiment—less its 105-mm Battalions which augmented Corps Artillery—but reinforced by the attachment of the two 75-mm pack howitzer Battalions of the Second Marine Division's artillery, was allotted special landing craft. The Second Division had been loaded aboard APAs and AKAs on the 21st of July and were to stand by to land behind the Fourth on order.

The Fourth Division, it was decided, would force the beachhead, but the question remained as to which beach it should assault. The enemy had made his choice. He estimated Tinian Town as first, Asiga Bay second, and the tiny strips of narrow beach on the northwest coast a highly improbable third. Tinian Town would accommodate a divisional landing comfortably, and two

This article has been reviewed by the undersigned and is an accurate account of this division's participation in the Tinian operation.—C. B. Cates, Maj. Gen., U.S.M.C.

divisions could probably get across it in the same day if they made headway against the strong defenses. They would take serious losses. Asiga Bay beach could accommodate a division if it was crowded, but mines and cross fire from the high points of land on each flank would take a prohibitive toll. The third choice appeared too small for a division to attempt.

The Fourth Marine Division made its landing at seven-forty on the morning of the twenty-fourth of July, on the northwest coast beaches. The enemy had been outguessed, and the experience and training of two years of amphibious warfare in the Pacific, culled and refined by the Fourth Division, moved all three regimental combat teams, four battalions of artillery, and Battalion Landing Team 1/8 of the Second Division across the beaches and into a beachhead perimeter in time to dig in for the night. The artillery, consisting of 1/10, 2/10, 1/14 and 2/14, all 75 pack howitzers, had the earliest battalion ashore and registered by 1600, all registered by dark. The two attached battalions of the Tenth Marines were registered and firing by 1635, and in all, over two thousands rounds were fired the first day. All of this was done at a cost of less than three hundred killed and wounded.



Details of the enemy defense system are revealed as centered about the beaches.

On this tiny beach, only sixty-five yards wide, a Marine regiment landed—much to the surprise of the Japanese—when the Fourth Division hit Tinian.

The preliminary bombardments had done their job well. Corps artillery and the four battalions of 105-mm guns from the Fourth and Second Marine Divisions, emplaced on the southern edge of Saipan, had systematically battered all suspicious areas bearing on the landing. Army P-47 fighters had shuttled a continuous rain of bombs from Isley Field to Tinian targets. Battleships, cruisers, and destroyers had added their weight of metal to the holocaust ashore. On the first day even the mortar and small antiboat fire was relatively light. Liaison teams in the landing groups had maintained contact with the artillery on Saipan and there was direct support fire by the heaviest guns available on all areas of the division front. The Second Division had made a diversion off Tinian Town, which may have distracted the enemy's attention for a short time.

We Achieve Tactical Surprise

Staging directly from the shores of Saipan in LSTs and LSDs, augmented by other types of large landing craft, the 24th Regimental Combat team (Colonel Franklin A. Hart) had crossed the northern, sixty-five yard long beach at seven-forty in the morning, at the same time as the 25th Regimental Combat team (Colonel Merton J. Batchelder) crossed the longer southern beach. The 24th landed in column of battalions, with the Second leading, while the 25th landed with its Second and Third battalions abreast and the First in reserve. By 1100 the two assault regiments with supporting weapons were inland across the beaches and the reserve regiment—the 23rd Regimental Combat team (Colonel Louis R. Jones)—came in over the larger beach.

Tactical surprise had been achieved. The only opposition during the landing on the smaller, northern beach was from small arms and a few mines. Mortars and the extensive employment of mines on the larger beach took their toll, and for a while on the first day all traffic had to be routed over the smaller beach. A few concrete pill boxes were troublesome and had to be by-passed, but the numerical strength of the defender was not enough to delay the advance. The beachhead was enlarged quickly as the units landed.

The Division Advances and Digs In

By nightfall the division held a perimeter extending inland at its furthest point some fifteen hundred yards from the beaches and covering about twenty-five hundred yards of the coastline. The 24th Marines held the north portion of the beachhead with two battalions on a front of some two thousand yards and the third in regimental reserve. South of it on the line were two battalions of the 25th Marines, and on the right flank of the 25th the 23rd took care of the remaining section of about a thousand yards. The attached Battalion Landing Team of the Second Division was Division Reserve. The right flank of the 23rd rested on the cliff above the water at a point some three hundred yards south of the larger beach, while the left flank of the 24th was based at the water's edge cliff slightly under two hundred yards from the northern beach.

The advance that day—although all units of the division got ashore and in the evening one Battalion Landing Team of the Second Division came in to act as Division Reserve—did not reach the 0-1 line at all points. It was decided at about 1730, nevertheless, to halt for the night and dig in in preparation for counterattacks. All flanks were tied in with the adjacent units, lines were consolidated, and a defense prepared in depth. All the barbed wire available was strung before positions. The Division dug in and waited.

As had been anticipated, the enemy reaction was rapid and typical. At midnight, the Marines on the beach noticed a marked change in the tempo of enemy shelling. Where previously there had been desultory firing by mortars, midnight saw

Waiting for H-Hour on Tinian, Marine tanks are at rendezvous with infantry.

field guns dropping shells into the beachhead area. This continued in increased volume, and at about two-thirty o'clock the enemy counterattack began. But the Division was ready.

The first indication of the enemy's movement appeared on the right flank, where the lines crossed the main north-south road from Tinian Town. Six light, model 1935, Japanese tanks came down this road. Some had men riding on them. All were camouflaged with leaves and branches. The Marine antitank weapons and artillery took them under direct fire at four hundred yards, and the tank threat was over. One got away.

The Banzais Are Silenced

Thereafter, until dawn the next morning, the enemy continued his attack, never infiltrating more than a few men into the lines. On the right, in front of the 23rd Marines, the First Battalion of the 50th Infantry destroyed itself against bands of machinegun fire and charges of canister. Two companies of the Second Battalion, 50th, were thrown into the fight. They, too, were destroyed on the wire. Crack troops, well armed and healthy, they were expended in futile banzai charges. A company of engineers, armed and fighting as infantry, also spent themselves during the night on the wire in front of the perimeter.

The attached battalion of the enemy 135th Infantry struck the lines of the 25th Marines. This battalion, constituting the enemies' reserve, had been moved up from the Marpo area on the southeast side of the island by forced marches during the day and night. Their daylight movement was along tree lines between cane fields, and only once were any of their units spotted. This was by a hedge-hopping aerial observer, who got low enough to see them beneath the trees. Completely equipped, with new rifles and with demolition charges, they were thrown into the attack on their arrival in the area. They were destroyed.

Artillery Does a Job

At one point, near the juncture of the 25th and 23rd Marines, almost a company of the enemy penetrated the perimeter and advanced well into the beachhead. A battery of 75-mm pack howitzers took them under direct fire and annihilated them. One company from the attached Battalion Landing Team 1/8 was used to reinforce the artillery during the counterattack. On the left flank of the perimeter all the Japanese naval personnel in the airfield area who could be gathered together attempted to rush the lines of the 24th. Armed with rifles, machineguns—in large part dismounted aircraft guns—and grenades, this group worked their guns but did not succeed in making a hole. They, too, were destroyed.

The attack, all along the perimeter, lasted until dawn. Illuminating shells kept the area light enough for any enemy movements of size against our lines to be observed. Two batteries of enemy 75-mm guns supported the attack as long as they lasted, but they were taken under counter-battery fire and knocked out to the last gun.

Twelve hundred and forty-one enemy dead were found in front of the perimeter when day dawned, and later information indicated that over 2,000 of Japan's best troops had perished in the attack. The Fourth Division, understrength and still tired from the Saipan campaign, had utterly crushed the best force the enemy could throw against the beachhead. Thereafter the enemy could not again collect his forces for any concerted effort. Small units delayed our advance where they could, and either retreated to the south or died where the Marines found them.

The Second Division came in on the next day, took over the left flank of the advance, and the Fourth swung to the right, beginning the advance south through the western half of the island. Resistance was slight. The Fourth Division took the commanding point of Mount Lasso on the twenty-sixth. Near it was found the principal CP and communications center of the defense.

Japs Take to Caves

The advance south along the western half of the island continued without appreciable incident. On the fourth day the Division made an advance of over 7,000 yards which covered all the Gurguan Peninsula and the new enemy airfield. Land mines knocked out only three tanks during the whole north and south movement. Scattered groups of enemy snipers and light mortars caused most of the casualties. The terrain was favorable

for rapid movement, and a highly developed road net eased the daily supply problems.

Near the southern tip of the island more difficulty was encountered. The enemy had no further area in which to retreat. Holed up in caves, he delivered sniper fire whenever our patrols came into his line of fire, and there was much work for the flame thrower and demolition teams. By the first of August the Division held all the high ground in its area and had overrun all of the western half of the island and the southern tip. The ground between the southern cliffs and the water was patrolled thoroughly.

The Tinian operation had its climax in the strenuous efforts of the Language Personnel to persuade the many thousand Japanese civilians to surrender to our forces.

Persuading Civilians to Surrender

The civilians, with such military personnel as had escaped to the cave and cliff area on the coast north and south of Marpi Point, were hiding in the crevices and caves of the coral and rock formations in that area. Many of these caves faced only towards the sea and could accommodate several hundred persons. Every attempt was made to persuade the several thousand civilians in these caves to surrender. Propaganda leaflets were dropped by aircraft. All available Language Personnel, from both divisions and the V Corps, were utilized to the utmost. Portable loud speakers mounted on jeeps were brought up as close to the caves as possible. The first results were gratifying. Not only did a great number of people come out after the first few attempts of the loud speakers, but many of these, when approached, were willing and anxious to aid the Language Personnel in their broadcasts.

High officials of the town government and the sugar mill industry added their testimony of good treatment to the appeals of the Language Personnel. Even some military personnel, among them a naval officer, spoke feelingly over the speakers to their countrymen. It soon became evident, however, that the vocal appeal, while effective in areas where there were not too many military personnel, could not persuade all of the enemy nationals that they would be treated well. Two determined enemy soldiers could cow large numbers of civilians into not surrendering. On more than one occasion, the Marines saw groups of Japanese civilians of both sexes and all ages led out into the open, tied into groups by perhaps half a dozen soldiers, and then blown up by land mines. After such performances the enemy soldiers would commit hara kiri with hand grenades.

Jap snipers lurked in these coral rocks commanding the Tinian beach approaches.

Both the Fourth Marine Division and the Second Marine Division are holders of the coveted Presidential Unit Citation, the Fourth Division for its part in the Saipan and Tinian operations, and the Second Division for the part it played at Tarawa.

Countless civilian families, whether at the urging of soldiers or not, threw their small children over the cliffs to destruction and then jumped after them. It was found that in cases where large numbers of civilians were mixed with military personnel, the most impassioned pleas of interpreters and helpful local citizens were frequently of no avail. In such cases only force could make an impression. After the speakers had made their plea, half tracks or tanks would approach the subject cave. The very appearance of the 75-mm gun on the tank or half track persuaded some civilians to come out.

In many instances the problem of the caves was complicated by the presence of enemy snipers who would either lie in ambush waiting for the interpreter parties to come closer to their cave, or would fire from within the cave at any Marines who approached. Then it was necessary to direct fire into the caves and take the chance of killing civilians in order to knock out the soldiery.

Although the coaxing of civilians was still going on when the Fourth Division was withdrawn from the area, the island itself was secured as a base for our war against Japan on the day that we occupied the high ground on the plateau above Marpo Point's coastal area. All exits from the area could be blocked with a few strong points, and there was little danger of the few remaining Japanese soldiery making any serious break through into the rest of the island. The Fourth Division had accomplished its mission on Tinian. The enemy had been ready. He was outguessed, outmaneuvered, and outfought at every turn. **END**

Tactics for the Rifleman

By PFC Frederick N. Sager

In warfare there is the "offense," with which the Marine Corps itself is practically synonymous. And there is the "defense," a term in general tactical use. Then, there is the "offensive defense," probably the nearest thing to a "defense" most of the Marine Corps has ever experienced.

This activity sets in, for the rifleman, when the smoke begins to lift and the noise starts dying down. The first objective has just been realized.

There is a tightening of the belt, a check of ammunition, oil applied to the weapon.

Security is out. Cover and concealment are established. Contact and interval have been maintained, and are rediscovered.

Fire lanes are cut. Channels to water, ammunition, food, and first aid are opened—within the unit.

The rifleman observes, to the front, as he relaxes. His five senses and *any* terrain are the only fundamentals necessary. As though he were compressing a coil spring, he is already building up reserve strength, to guarantee his capacity for helping the next "offense."

Taking Over the Terrain

The first portion of terrain to be taken over is that within hearing and seeing range—and to the immediate front. The V-shaped plot in the middle of the semi-circle to the front is his starting point.

Gradually, he covers the whole 180 degrees out there. First with his eyes. Then with his ears. Next with his feet and hands. And with his nose, mouth, skin, and body.

Every inch of this particular terrain, he takes over. He gets with it; tests it; watches and studies it; understands it—so that he may use it, and control it. From right now, and on.

By night as by day, in moonlight or blackness as in sunshine or cloudiness, in rain or not, he develops into his plot—constantly.

He Becomes Master

The longer he is here, the nearer he comes to complete and continuous—intimate—mastery over the terrain within his effective range. Every bend to every limb of every tree. Frontwards and backwards, "from cover to cover." Every stick and stone, and how they'll serve him best.

It is his business to know where the one hundred, two hundred, and five hundred yard ranges are in his plot of terrain. Where a grenade would be most effective. The thick and the thin. What the speediest and safest avenues are. What cover and concealment ahead of him will stop his bullets — those of the enemy.

Ideally, he is constantly applying his five senses systematically to the thousand yard radius around him, the better to assure control and certainty in his "delivery of the lead" . . .

Taking tactics to mean pre-established fundamentals of behavior, this glimpse of tactics for the rifleman, gleaned from recent Pacific experience, may serve as a reminder of the scope of the task. Picture a platoon of men, using, living these tactics—picture smitten riflemen in the "offensive defense."

What tonic for the Corsair pilot!

What inspiration for the rocket gunner!

What compulsion to the quartermaster!

$500 FIRST PRIZE WINNER
In Marine Corps Gazette Prize Article Contest

Battalion Landing Teams in Amphibious Operations

By Lieutenant Colonel Robert E. Cushman, Jr.

Long before the opening fire on D-day, the battalion commander is faced with many problems which must be solved if subsequent operations are to succeed. The invasion itself causes these problems to become increasingly greater and more complex. Writing from experience, Lt. Colonel R. E. Cushman presents in practical form what the commander of a battalion landing team should know about amphibious operations. Some of his points are not necessarily indicative of standard practice, but they are generally workable, having been evolved from a study of field manuals, applied as principles in maneuvers, and given a final test in combat against the enemy and very rough terrain. The article is presented in three parts—Supplying an Amphibious Operation, Movement from Ship to Shore, and Supporting Fires—Artillery, Naval, Air.

SUPPLYING AN AMPHIBIOUS OPERATION

SUPPLYING an amphibious operation is difficult mainly because there is always a lack of transportation to support adequately an attack which moves quickly. As battalion commander, you must put one of your best officers in the supply job, and then keep a continuous personal check on every aspect of this important function of command.

Supply to the Beachhead

Since all supplies which support the attack must be transported overseas in ships, the logistical problem actually begins with the loading of the ship, which must be done to conform with the tactical scheme. The equipment and supplies which are to be taken must first be decided. This decision normally comes from higher headquarters, and, upon its receipt, the planning starts. Each unit which is a member of the landing team must prepare a Unit Personnel and Tonnage Table, supported by an inventory of each item to be taken. These tables are consolidated.

The next step is the preparation of the loading and stowage diagram based upon the commander's decision as to priorities of unloading and the consolidated table. With vehicles, this priority must be established for each vehicle. For other equipment, it can best be established by type, the usual order being, 1) organizational combat equipment, 2) ammunition, 3) water, 4) rations, 5) engineer and medical equipment, 6) fuel, 7) other types. It must be noted, however, that ammunition and rations are usually loaded in separate holds, and take as long to unload as all the other equipment. Hence, rations must be so mixed, and ammunition must be so mixed, that at any given time during unloading all types of rations and all types of ammunition will have arrived at the beach in quantities of the proper proportion to furnish a balanced ration and ammunition for all weapons.

Vehicles require detailed preparation prior to loading. On each vehicle, reserve gas, oil, and water must be secured. The fan belt must be disconnected, and, once in the hold, the battery terminals removed and taped and the clutches tied down. If landmines are expected on the beach, sand bags on the floor boards may save the driver's life. A shelter half should be tied across the radiator, the exhaust pipe should be lengthened and bent upward, so that its opening is above anticipated water level, and the spark plugs and distributor should be coated with rubber cement. The combat loading of each cart, trailer, jeep, and truck must be specified and adhered to by the units.

The personnel who are to execute the loading must be carefully instructed prior to the event, and responsible leaders should be given plans of the hold they are to load. Men who must unload the ship should always have the same job while loading the ship. This means, of course, that the

The main link between supply boats and trucks is furnished by hand laborers.

shore party must be detailed before the ship loads. They should be detailed by name to specific jobs, and rehearsed. The ship platoon and the boat platoon should then be used for ship loading, so that they will be familiar with their tasks on D-day.

In direct charge of ship loading must be placed an officer with sufficient rank to deal with the ship's officers, and with sufficient experience to take charge of the men and planning involved. This is the battalion executive officer. Directly under him, as his assistant, should be placed an officer who, on D-day, will become the Ship Unloading Officer. Different officers are used, because on the day of the landing the battalion executive must bring the rear echelon of the command post ashore, and be prepared to take over the battalion in case of casualty to the commander. Furthermore, once the ship is loaded, there are practically no decisions that can be made regarding the unloading, as the gear has to come out the way it was put in. Any changes are dictated either by a failure of naval equipment or by an order from the beach.

From the foregoing, it will be seen that supply from the ship to the beach is a matter of careful planning, assignment of personnel, and rehearsal *before* the ship is loaded. After this has been done, the actual supply to the beach becomes a mechanical matter of physically lifting the equipment out of the hold into whatever types of boats are used and carrying it in to the shore party.

Operation At the Beachhead

Smooth functioning at the beach depends largely upon the performance of the shore party, which must be organized according to Fleet directives and drilled and rehearsed thoroughly before ever boarding ship. A shore platoon of pioneers supervises the work, and a labor platoon executes it. Their mission is: 1) to remove supplies and equipment from boats bringing them from the ship, then 2) to move these supplies and equipment into dispersed inland dumps. First priority is always unloading of boats; then the beach is cleared. In the ideal situation, both jobs are carried on simultaneously, but if any conflict arises the boats take precedence.

The major problem to be solved is presented in these terms: Boats are the fastest means of getting supplies from the ship to the beach or reef. Trucks are the fastest means of getting supplies from near the beach, and sometimes the reef edge, to the inland dumps. The link between the two is mainly hand labor, with the aid of some cherry picker cranes. Amphibious vehicles are limited by considerations of wear and tear, slow speed, and numbers available from making a complete ship to dump movement of all the supplies. What we seek is speed of supply from ship to dump.

At present a compromise has proven best: Use of boats from ship to reef or beach, use of cranes and hand labor at the boat unloading, and the use of amphibious vehicles and trucks from the boat unloading points to the dumps. This has the advantage of allowing boats, with their high speed and large cargo capacity, to constitute all the waterborne traffic, and of concentrating the greatest number of vehicles at the vulnerable point—the point where the boats are unloaded. The ideal solution would be to have the entire cargo aboard ship preloaded on 1) all vehicles carried in the ship, and 2) amphibious trailers. Boats would carry the vehicles to the beach, where they could proceed to the dumps. Amphibious trailers would be lowered into the water and picked up in tandem groups by DUKWS and Amphibious Tractors, which would have been carried by Landing Ship Tanks (LSTs) and launched in the vicinity of the Transport Area. Then, in two or three days, after the beach is clear of mortar and artillery fire, LSTs and Landing Craft Tanks (LCTs) can be brought directly to the beach with second echelon supplies. It is felt that on D-day, and the succeeding few days, they would present too large and immobile a target to ground on the beach. Other considerations influence the above solution. One is that landing on beaches with coral reefs is just about over at this stage of the war, and that amphibious vehicles may now revert to their more proper use as cargo carriers. Assault troops will then be carried in APAs exclusively as the fastest, safest way to get troops on a hostile beach; in Higgins boats launched from transports. LSTs can then be used to transport amphibious vehicles and cargo rather than amphtracs and assault troops.

And now a word or two about inland dumps: They should be selected and manned by Bn-4 and his section. Dumps for the various classes of

A compromise has proved best: Use of boats from ship to beach; use of cranes and hand labor at boat unloading; use of amphibians and trucks to the dumps.

supply should be under cover, behind the unloading point and beach exit for that particular type of supply as selected by the shore party commander, and should be several hundred yards inland, with a good turn around for trucks. These dumps perform a double function, that of dispersing supplies inland from the beach, where they are less vulnerable to air attack, and that of functioning as battalion dumps for supply of the front lines. This is a point often misunderstood by shore party commanders, Bn-4s and others who talk about responsibility "from the high water mark," and so on. This talk obscures the fundamental issue, which is that the commander is wholly responsible for the supply of his troops; hence, when a battalion landing team lands on a beach and presses forward to the first phase line, the entire area from the phase line to the water constitutes the battalion beachhead, and all troops working therein come under the battalion commander and are laboring to a common end. The placing of supplies in the dumps within that beachhead is the task of his shore party. Their segregation and movement forward to the troops is the task of Bn-4.

Now, perhaps late in the day, or the next day, battalions will have gained contact and moved forward to a regimental objective, and the beachhead will become greatly enlarged. At this point, when regimental agencies and transportation can safely and efficiently be placed in this larger area, R-4 may well take over the inland dumps. At this point, they become regimental, battalion, and inland dumps. Notice, however, that operation remains almost the same. There are a few additional checkers and segregators to help, and, of course, some of the supplies from the Reserve Battalion may be unloaded over what was your beach. At the same time, regiment will combine the shore parties into a regimental shore party encompassing all the beaches that regiment landed upon. In effect, the regimental commander is saying: "We are well enough established ashore now so that I can take over my command function of supplying the regiment." At that moment, the responsibility of the battalion commander for the ship to dump movement of supplies ceases. He is then only concerned with the third phase of supply—from the dumps to his troops.

Combat Supply From the Beach Inland

The principles which should be followed are clearly outlined in FM 100-10 and in Marine Corps Schools. However, certain modifications are necessary, because supply depends upon transport, which, in turn, is affected by the terrain, the road net and the number of vehicles brought along for the assault.

First, it was found that where no road net existed, and swamp and jungle had to be traversed, amphibious tractors and Athey trailers pulled by caterpillar tractors were the only answer to getting supplies within reach of the troops; that is, to a point where carrying parties could get them to the front lines. This is an exhausting method of supply, and greatly curtails the

speed of advance in the attack. Under such conditions, roads must be pushed through with all possible speed.

Second, although Operations Orders always prescribed battalion dumps and levels to be kept therein, it is my experience that a battalion dump is neither possible nor necessary while in the attack. There are several reasons for this: 1) Troops cannot efficiently carry enough high explosive on their backs to adequately supply mortars, bazookas, demolition teams, and grenadiers; hence the three jeeps allowed to an assault battalion by present loading plans must be used (as indeed they were furnished to be used) for quick follow up ammunition carriers close behind the assault. 2) With all battalion transportation being used in this manner, regimental transportation must bring the supplies within reach of the

CHECK LIST OF ANNEXES

- Intelligence annex—
  - Does it contain all enemy information?
  - Does it contain *your* essential elements of enemy information (not simply copied from the regimental order but the things you personally want your company commanders to tell you)?
  - Does it have appended a clear overlay showing all known enemy installations?
- Operation overlay—
  - Does it show clearly the boundaries, objectives, and scheme of maneuver of your own and adjacent units?
- Boat assignment table—
  - Does it include boat spaces for every man and his equipment?
  - Does it provide for the second trip of the boats?
- Debarkation schedule—
  - Does it tell every man where to go to get into his boat?
  - Does it include an alternate plan in case of rough weather when only the lee side of the ship may be used?
  - Does it include complete instructions for davit loading?
- Signal annex—
  - Does it include all special signals for controlling boat movements?
  - Any special distribution of signal equipment for the boat ride in?
  - Special signals and pyrotechnics for communicating with tanks, aircraft, supporting naval vessels and higher command echelons?
  - Does it include the air raid warning system?
- Chemical annex—
  - Does it include definite missions for decontamination squads and equipment which such squads will carry by hand as distinct from that in the battalion dump?
  - Does it definitely state upon whose authority individual protective equipment may be dropped by the individual and placed in dumps?
- Shore party annex—
  - Does it include a complete roster of all working parties showing where each man is to work, and who will be in charge of him?
  - Does it include an overlay showing dump sites, shore party CP, beach exits and turn arounds?
  - Does it contain instructions to the shore party in case of air raids?
  - Does it include orders for the defense of the beach with a definite commander for such beach defenses?
- Administrative order—
  - Check it carefully against the Staff Officers' Field Manual for completeness.
- Additional points to be noted—
  - Have you put out complete instructions on the use of the password?
  - Have definite instructions on the use of smoke been included?
  - If you are on a flank, have definite orders been given for the protection of that flank of the beachhead?

using troops, which means within reach of carrying parties, since the battalion has no trucks. 3) Troops can carry two days' rations and one day's water, but they can fight a lot better if the load is lightened to one day's rations. This means daily supply of water and rations, and, of course, expended ammunition. 4) In a fast moving attack, a battalion dump would have to be displaced forward at least every three days. It must be moved whenever the time and effort of moving become less than the time and effort of using it as a distributing point. With hand-carry, this means the dump must be kept within a thousand yards of the troops, while with jeeps five miles is about the limit.

Of course, it must be realized that this discussion concerns supplies and not equipment, which is generally left in regimental or battalion rear dump until needed and called for. Neither does it apply to the defense when levels are built up both on position and in dumps.

Under the conditions outlined above, it is found necessary to gather all the battalion supply sections together under R-4 into a regimental train, which then supplies the battalions by the unit distribution method rather than the dump method. A regimental train has the advantage of pooled and efficient use of the slim transportation available, and can also set up kitchens and cook doughnuts and coffee, if not full meals. However, if the regiment has to move rapidly over an extended period, and tries to displace a dump with even low levels, so much time will be spent moving the dump that no supplies will reach the troops, since the regiment has all the transportation tied up. Only an R-4 of excellent caliber can alleviate or handle the situation. It should be done by leaving the dump in position, and moving the train direct between division distributing points and battalions.

In conclusion on this subject, I would say that, from a battalion point of view, the use of a well-run regimental train is the best. Paragraph 197, of the Field Manual, states: "Normally, supplies are not transferred from truck to truck or placed in dumps from the time they are received from the army (corresponds to our division beachhead) supply points until they are delivered to using troops." To apply this principle, a regimental train is the answer, but, if it is not run by an alert, aggressive R-4, then it is best to release a proportionate share of the transportation to the battalion and let Bn-4 try it.

MOVEMENT FROM SHIP TO SHORE

Assault landings, as well as battles, are won long weary months before the enemy is engaged. Victory comes from tough, strenuous training under close supervision of the battalion commander. As the great day approaches, victory is insured by the painstaking preparation of orders which enable every private to know exactly as much concerning the landing as does the commanding officer. Nothing requires so much attention to detail, such meticulous planning, as an asault against hostile shores, and the landing team commander may well consider that each and every overlooked detail is going to cost some Marine his life.

Preparation of Orders

Of primary importance in the assault of a hostile shore is the timely issuance of complete and clear orders. This is one time when the mimeograph is invaluable. Actually, these orders may be compared to a textbook, and one which every private in the landing team must be taught thoroughly if an efficient, successful landing is to be made.

The operation order must be clear and rather more detailed than the usual attack order. Missions must be very clear, concise, and detailed. It is the annexes, however, which supply the bulk of the explanatory details. A check list covering these annexes is presented with this article, and should be studied carefully. None of the points covered are suitable for inclusion in SOP, for they change with each operation. They must, therefore, be carefully reviewed to make certain they are included in the orders.

Individual Equipment

Items of individual equipment should be made the subject of memoranda prior to embarkation, and of inspections while aboard, to insure compliance.

Decisions must be made by the battalion commander, with the advice and recommendations of his unit leaders, as to the exact amount and type of ammunition to be carried by each man. The following may be used as a check list: Ball and tracer small arms; mortar ammunition by hand, by cart, by jeep and trailer; pyrotechnics (smoke grenades of various colors and signal projector ammunition); TNT and bangalore torpedoes; grenades, to include fragmentation, white smoke, incendiary, AT, and antipersonnel with discharger,, as well as adapters for hand grenades if used.

Definite operators, assistants, boat spaces and ammunition resupply must be designated for all special weapons, such as flame throwers, bazookas, mines and pole charges.

Decontamination squads must be practised in

their duties, and their equipment and supplies must be enumerated for quick decontamination of an area or of a weapon. Sanitation squads must have the proper equipment for the sanitation of enemy dead.

Many signs are prescribed for a landing—boat signs, assault platoon signs to leave on the beach, signs to mark the end of the telephone wire dropped on the beach, signs with the code designation of the CP, beach marking signs to show the flanks and the unloading points for various types of equipment. Be sure you make or draw the flags, and have specific individuals detailed to carry, plant, and display these various signals.

Flame throwers, bazookas, and radios are subject to immediate ruin from salt spray. Make certain that extra gas capes have been drawn to waterproof these items during the boat ride. Two gas capes per item have been found effective. Vehicles should be waterproofed as described in the first part of this article.

Check with your companies to see that each item of equipment which must be lowered into a boat has a complete lowering line. Try to get the ship to provide a large canvas bag at each debarkation net to facilitate the lowering of machinegun ammunition chests and other small items. Make certain that each vehicle has the proper type of sling and spreader for ship loading and unloading. These may be supplied by the Marine Corps or the Navy.

The contents of the pack must be specified, as well as the arrangements for unloading the bottom half of the pack on D-day. The best solution is "fire group sea bags." Draw a sea bag for each four men and place their knapsacks and rolls inside. Each knapsack should be lined with a rubber jungle pack liner. This sea bag is then suitably marked, stowed in a central unloading area on the ship just before D-day, and placed in the battalion dump after unloading on the beach until such time as the troops can use them. The top half of the pack is worn ashore.

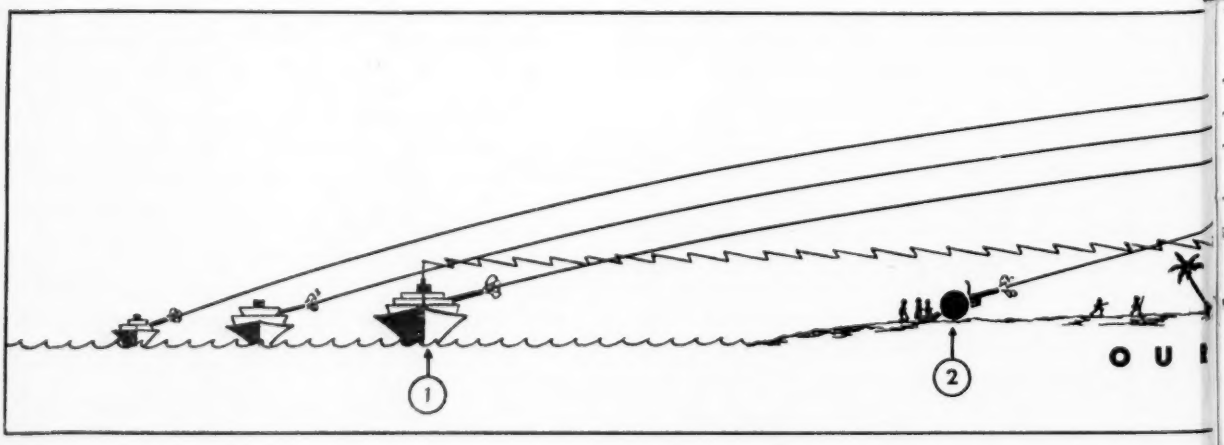
When you have taken care of all these details, you can truthfully say that your men are ready to go ashore as far as uniform and equipment are concerned.

Organizational Equipment

I have covered earlier in this article most of the points of ship loading as they affect a battalion commander. Let it suffice here to make a final check of your loading plans, first, to see that what you want first on the beach will get there first, particularly as to vehicles for the shore party, for evacuation, and for air liaison; and, secondly, to see that your ammunition and rations are so loaded that at any point in the unloading you will find representative items of each of these two classes of supply on the beach.

Do not forget while loading that you must set aside several things so that you can get at them while still aboard. For instance, rations to be consumed during rehearsal and rations to be issued to take ashore on D-day; ammunition which cannot be kept in the troop compartments, but must be used in training or on D-day, such as pyrotechnics and high explosives; gasoline to refuel the vehicles used on the rehearsal; gas masks which deteriorate rapidly in the hands of the troops but must be carried ashore; certain heavy equipment, such as artillery, beach marking signs, decontamination equipment, and certain CP equipment, which can be manhandled on land but cannot be lowered into the boats by hand.

Don't forget that in loading you must have unloading details on the ship performing the same tasks that they will have when they unload for keeps, and that careful planning is necessary to get all the units' gear to the beach and dock and



1: Ships to fire minimum of 500 yds. ahead of troops. 2: Artillery to fire minimum of 100 yds. ahead of troops. 3: Mortars to fire up to 50 yds. ahead of troops.

segregated properly as to class and ship's hold. Signs, guides, and joint conferences are necessary to insure success.

Embarkation

It would seem that embarkation has little to do with ship to shore movement, but such is not the case. A careful billeting plan must be made, bearing in mind that those who go over the side first must live closest to the topside, and that those who go over the side forward must live forward. In other words, billeting must be done so as to dovetail with the boat assignment table and the debarkation schedule.

Training orders should be promulgated to provide for physical training for the troops while aboard ship, lectures on every phase of the operation, and inspections. You will, of course, already have rehearsed everything possible on dry land, and, after your "dress rehearsal" from the ship, will have adjusted your orders to take care of any changes found necessary.

And, finally, just to make life smoother and easier prior to embarkation, all police, mess, and guard details, with appropriate officers in charge, should be detailed by name.

SUPPORTING FIRES—ARTILLERY, NAVAL, AIR

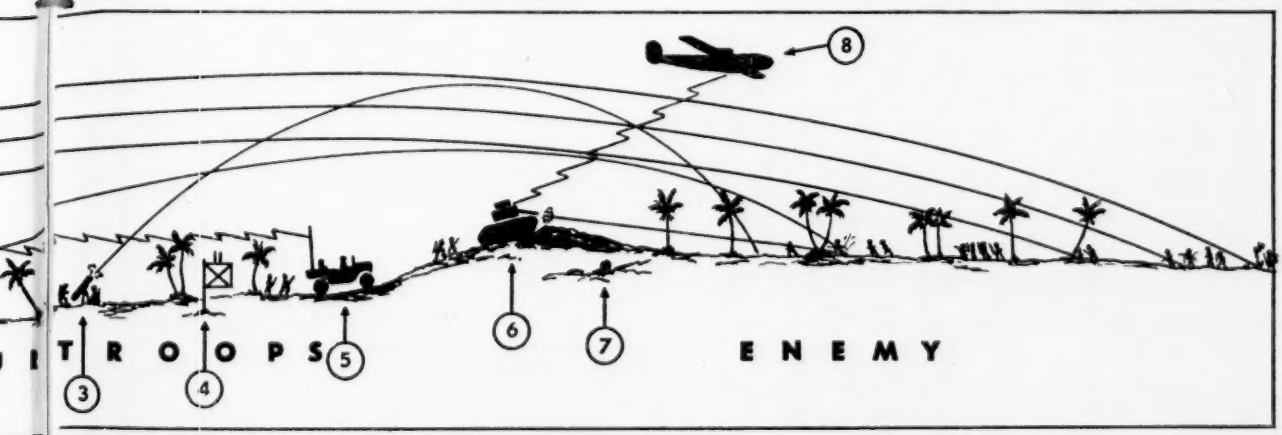
Mortar fire, artillery fire, and naval gunfire can be delivered simultaneously within a very few minutes in close support of a battalion using each type of fire against the targets for which it is best suited, and at the most suitable ranges in front of the troops.

Artillery

Artillery is still the primary and most effective close support weapon for the infantry, and the coordination of the two arms has been so well worked out that I will only touch on it lightly here. Our present methods of employment are believed sound—the massing of fires under the control of forward observers in the front lines of the infantry. However, a few points of the technique will not be amiss.

In ship to shore operations, the first vital step is the establishing of communications so that fire may be promptly delivered when the battery is set up. A forward observer team consisting of officer, radio, and wire team should be boated with the company commander of each assault rifle company. If amphibious tractors are used, there may not be sufficient room. In this case, the F. O. team may be placed in a tractor which comes in immediately behind the rifle company commander's tractor, such as one which brings in his light mortars. The artillery liaison officer should be with the battalion commander, if in a boat, or with the battalion executive in the rear echelon of the CP if in tractors. These artillery personnel, immediately upon landing, establish radio and wire communication with their battery. If possible, they establish a wire net entirely their own; if not, they use portions of the battalion wire net. Should the battery land on some distant beach, as is often the case, the artillery battalion or regiment should set up a forward switching central which may be used by the F. O.'s to tie into with their wire. If things are done properly, the battery will be able to fire in your support within a few hours, and the battalion a short time after that.

And now you wish to use this powerful weapon to support an offensive. Do not forget two con-



4: Naval gunfire liaison and CP. 5: TCS jeep radio with TBX standby. 6: Tanks. 7: Forward artillery, naval gunfire observers. 8: Plane radios enemy positions to tanks.

siderations: First, coordinate your artillery fires carefully with those of your mortars, using the latter to strike defiladed targets and targets within fifty yards of your own troops. There will be plenty of targets out beyond one hundred yards from your own troops for the artillery. Second, request that the artillery fire be broken in the middle for several minutes. Otherwise, you are liable to find that the Japs open up with mortars and artillery of their own just as your troops cross the line of departure, whereas, if you habitually use pauses in your fire, they will never know when the barrage is over.

A technique which we fumbled, and which should be improved, is the use of the spotting plane during a fast moving attack. During this type of attack, characterized by battalion columns spearheaded by tanks, it is impossible to keep up with wire, and the SCR 300s of the F. O.'s soon get out of range of the artillery battery. A spotting plane then becomes invaluable—if communications can be established. However, it is the regimental artillery liaison officer who is in touch with the plane, and he is too far behind the head of the column to know the situation. Often it is impossible to get in communication with him because of the same difficulties which precluded getting in touch directly with the artillery batteries. It is, therefore, recommended that radio communication be set up between the tanks and the spotting plane, using the organic tank radio if possible. This set-up would have real value not only as a fire control net but as an intelligence agency of first importance.

And just one final point before we leave artillery fires—don't forget to register your defensive concentrations before dark.

Naval Gunfire

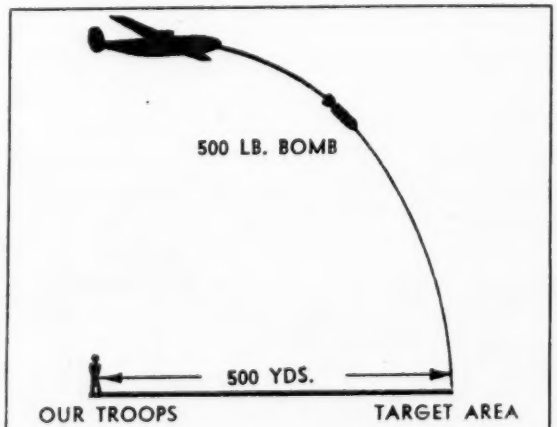
Naval gunfire is characterized by flat trajectory and very small deflection error. As a close support weapon it, therefore, lends itself to enfilade fire to within five hundred yards of the front lines, perhaps closer in emergency. Its great value to the battalion commander lies in the fact that it is waterborne, and can be used during that critical period during the landing before the artillery is emplaced and ready to fire. I would never regard it as other than an emergency substitute for artillery because of the limitation just stated. From a regimental and division standpoint, however, it is valuable for taking over some of the burden of deep supporting fires from the shoulders of the 105s and 155s as the campaign progresses. I found the main use for it to be the bombardment of ravines open to the sea, but defiladed from artillery fire and too far away from mortar fire.

Control of naval gunfire is relatively simple, and depends entirely upon the radio used to reach the ship. A TCS jeep radio is used with a TBX as a standby. A wire is run from the defiladed position of the jeep up to the spotting position at the OP. The spotting officer is at the OP and the liaison officer remains at the jeep relaying spots. The first round is usually smoke—and is usually way off. As soon as spotted on, however, naval gunfire is remarkably accurate. It is a great help if the liaison officer can do some temporary duty aboard the destroyer whose fire he will control in battle, and, of course, the entire naval gunfire party should go on as many "shoots" as possible with the ship it will later fire in combat.

The main point to be remembered in connection with naval gunfire is that you must use it to bridge the gap between landing and setting up of the artillery. This requires careful planning; the naval gunfire liaison party should be with the battalion commander in his boat or tractor with the TBX, and the TCS jeep should come in with the highest priority, so that it may be used immediately. Just as soon as the CP is occupied, you should set up and test communications with the firing ship; then you are ready to support your attack as required.

Two supplementary uses of naval gunfire which should not be overlooked are smoke and night illumination. The latter should only be used if you can control it. If some other ship than your own uses it, a ship you are not in communication with, you will find that it merely illuminates your own lines for the benefit of the enemy. Careful control and spotting are necessary. In fact, 60-mm. mortar illumination is generally better. In some isolated instances, searchlight illumination is useful, but it must never be used if the enemy still has batteries that can bear on the illuminating ship.

Rocket gunboats are often useful along the



SAFETY FACTOR FOR AERIAL BOMBING—ONE YARD PER ONE POUND OF BOMB

shore in close support. It should be noted that when using them front lines must be marked and the target area should be designated by mortar smoke for safety's sake. Fire is controlled by radio, which must be arranged beforehand and is usually TBX.

In conclusion, it may be stated that naval gunfire is an extremely useful tool in the hands of the battalion commander during the initial stages of the landing, but that it grows less useful to the battalion and more useful to the division as the campaign progresses. With proper communications, it can usually be called down as quickly as artillery, but cannot cover as many targets in a given area as can the artillery.

Close Air Support

The technique of close air support is not difficult and becomes quite easy with practice. I always made it a practice never to have a battalion problem without air support. A TCS jeep radio in defilade and connected by phone to a spotter is used to request air support and to control it. The support air commander okays the request and turns it over to the air coordinator for execution. The air liaison party gives him the target designation and arranges to have the front lines marked by smoke or panel. The target may be marked by mortar smoke. The planes bomb the target, and any corrections necessary are made over the radio to the air coordinator or to the planes direct if they have been released to the air liaison party by the air coordinator. A safety factor on one yard per pound of bomb is used; that is, a 500-pound bomb should land no closer to own troops than 500 yards, and so on. Such is the technique of a battalion using close air support, and it is not difficult. But, getting the proper bomb on the target at the proper time and without killing any of your own men is something else again, as we shall see.

At the risk of being called a reactionary dodo, I am here going to state that I don't consider aircraft a suitable close support weapon for a battalion. I don't believe that anyone below a division should have anything to do with supporting aviation. And it is not because I haven't tried, for I have used air support within seventy-five yards of my own troops successfully. Experience leads me to believe that the pendulum has swung too far, and that we are attempting to use aviation for something beyond its capabilities. The greatest help that aviation can be to a battalion is to first knock out the enemy air. It can then knock out such targets as enemy tank and troop concentrations, bridges, supply installations, and the like, all of which are a considerable distance in the enemy's rear and are the proper concern of division or higher headquarters. A battalion should have nothing to do with all of this—it would simply benefit immensely from such activity but would not control it.

The reasons for my conclusion are several. First, in an amphibious operation, the support air commander is waterborne, the air coordinator is airborne. while the targets are on the ground. This means a monumental difficulty in target designation. Second, when a battalion attacks, it has limited objectives, five hundred to a thousand yards apart. Speed of attack is essential. Yet, when the battalion is held up, to call for air support and get the planes started dropping bombs may take up to two hours. Artillery would do the job in ten minutes. Sometimes you can get air support in ten minutes, but not always, and you can't wait to see. This might be one of those times it takes two hours. Third, in a matter of minutes, you can spot artillery and mortar fire on the type of small, obscure target which holds up infantry nine times out of ten—targets which are difficult to see from the ground and impossible from the air, such as caves, machinegun nests, and so on. On the other hand, spotting the dropping of bombs from aircraft is difficult, because they are inaccurate and because all air coordinators have an extreme reluctance to turn over control of the planes to the air liaison party down on the ground. Fourth, bombs and rockets do not destroy the target, and have relatively little effect on the pinpoint type target which holds up the advances of foot troops, unless a direct hit is obtained. Fifth, the infantry is usually right on top of these targets when they get held up, and bombing is too inaccurate to employ against a target which often has infantry on three sides of it. This means you have to withdraw, a process extremely distasteful to me and often costly. Sixth, the great majority of aviators have gone direct from college to aviation cadet training at Pensacola, then to active duty as aviators. Consequently, they know absolutely nothing of ground warfare or of the infantry's problem. As a matter of fact, most of them dislike intensely being assigned to support ground troops. Seventh, close air support is extremely dangerous to friendly troops. A front line is never a straight line; it has salients and reentracts all along its length, depending on the progress of the fighting at different points.

Now, bombing is accurate in deflection but *extremely* inaccurate in range; that is, along the line of flight. Therefore, bombing is usually carried out parallel to your front lines. However, when a battalion calls for air support, it gets its own front lines marked but not those of the next one, two, or even three battalions over. And, believe me, those are the people who get hurt, the troops some six hundred yards away who don't even know there is an air support mission going on over in that next regiment until

they get blasted out of the nice salient they just punched into the Japs an hour before.

Let me emphasize that I have only praise for aviation in general, and for the multitude of really important tasks it performs. What I take issue with is the new idea of handing a battalion a squadron of planes and assuming its problems are over—it can now take any objective. It has even become the practice of the higher command echelons to call up battalion commanders and tell them they aren't using their air support enough, to start sending in missions. I claim that the battalion cannot even see proper objectives for aviation, because they are too far beyond the immediate battleground where the battalion is fighting it out with the Japs at that moment.

I believe that close support aviation should be handled by division. It should be employed against targets it can best cope with because of its mobility, range, and ability to see far behind the enemy's lines. The division can best assess the importance of such targets in the scheme of things, and can balance their importance against the limited bomb load and air alert period of aircraft.

For safety's sake, a division bomb release line should never be established closer to own troops than 1,500 yards, beyond which all bombs must be dropped. Artillery and mortars can be used against all targets within that line. An exception may be made to these rules when aviation is used as preparatory fire for a general attack carried out on a time schedule. In this case, it may often be advantageous to use bombers to thicken the artillery preparatory fires against certain key targets. Lines may be marked, times set, bombers controlled by front line liaison parties, and all arrangements made by orders the night before.

Training Sea-Going Marines

Aboard every capital ship, cruiser, carrier, or large transport in our Navy can be found a detachment of Marines, each of whom has volunteered, worked, and trained for the privilege of becoming a "Sea-Going Marine." These men, who serve aboard ship as gun crews on antiaircraft weapons, as orderlies for the ship's captain or other high ranking Naval officers, and as security guards while at sea or in port, are Marines carefully chosen from applicants who volunteer for this duty from every branch of the Corps. Those accepted are picked according to their intelligence, ability, physical appearance, physical stamina, and aptitude.

Volunteers accepted for sea duty attend the Sea School at the San Diego Marine Corps Base for five weeks of intensive training, which actually is comparable to six months duty aboard ship. The schedule of training at this school is one that has been evolved through years of experience and is constantly being improved as new subjects are added to keep abreast of current changes or as new conceptions of old established principles are developed. Instructors who have had combat experience and sea duty train new men in preparation for their new duties so that they may be qualified to wear the proud shoulder patch of the sea-going Marine—the distinctive golden sea dragon.

At the first week of Sea School, the volunteer takes courses pointed toward a grasp of his new duties at sea. This week ends with a thorough examination and the second week includes the addition of other courses, such as Orderly Duty, True and Relative Bearing, Antiaircraft and Surface Lookouts. An examination ends the second week and the course is intensified as the student's ability to grasp intricate details and training aids increases. Most of the third week of training is taken up with instructions in gunnery to prepare the student for actual firing later of the various weapons studied. Each student receives a thorough and complete working knowledge of the duties of a gun crew; instructions on 5.38 caliber loading machine; 5.38 caliber antiaircraft gun; 40-mm loading machine; 40-mm antiaircraft single mount gun; and the 20-mm gun and mount. In addition, training is given on the Panoramic Gunnery Trainer, Mark 2; Browning Automatic Rifle; .45 caliber automatic pistol; and the Mark 14 gun sight.

The entire fourth week of training is devoted to further gunnery study and to actual firing at the Naval Antiaircraft Training Center, Pacific Beach. The fifth and final week of training consists of advanced work in the theory and technique of gunnery concerning the weapons previously studied and fired, together with a two-day course at the Navy Fire Fighting School at San Diego.

With this five weeks training behind them, the students are available for transfer to Sea Duty and usually are dispatched to a port of embarkation to await assignment to some ship of the fleet.—CAPTAIN JOSEPH F. LA BONTE, Commanding Officer, Sea School, Marine Corps Base, San Diego.

Oriental Exploitation Company

Our capture of Saipan and Tinian was a blow at Japan's great Houses of Mitsui and Mitsubishi, which had large investments in the sugar colonies there. *By Sgt. Dan Levin**

THE Houses of Mitsui and Mitsubishi, Japan's two great financial, commercial and industrial monopolies, felt it when American Marines and Army troops seized Saipan and Tinian Islands in the Pacific's bloodiest land battle. For Saipan and Tinian represented the fringes of a vast Mitsui-Mitsubishi "Sugar Cane Empire" whose center is the island of Formosa.

Together with the subsequent seizure of Peleliu, the capture of Saipan and Tinian wrote finis to the major holdings and probably to the existence of Nanyo Kohatsu Kaisha, or NKK—the South Seas Development Corporation, giant government-sponsored firm which operated Saipan and Tinian as sugar colonies. Controlling interest in NKK was held by Toyu Takushoku Kaisha—the Oriental Exploitation Company, financed heavily by the Houses of Mitsui and Mitsubishi.

Saipan and Tinian, under Japanese rule, resembled a large estate of about 125 square miles inhabited mainly by share-croppers raising sugar cane for NKK. Industry centered on the operation of two NKK sugar mills, one at Charan Kanoa on Saipan and one in Tinian Town on Tinian Island, and the majority of the population lived in homes owned by NKK.

Most of the civilians on the two islands either worked in the sugar mills or share-cropped sugar cane. Sugar was manufactured in the mills for local consumption and for export. Cheap spirits were also produced, and a significant amount of fuel alcohol. The mill workers and share-croppers were mainly immigrants imported by NKK from the impoverished Ryukyu islands—the Okinawans. Even cheaper labor was provided by the indigenous inhabitants of the islands, the Chamorros, and by Koreans forcibly imported.

The wage scale was definitely lower than in Japan proper. The Chamorros received even less than the Okinawans, while women worked for half the wages of men. Official Japanese figures, published in 1937, for wages in the sugar industry in the Marianas gave .60 yen to 3.30 yen as the range of daily wages for various types of skilled and semi-skilled work, while laborers in the mills earned 1.00 to 1.20 yen, and women received .60 to .80 yen. Since one yen is valued at about five cents, wages thus ranged from about three cents to about eighteen cents a day.

Housing was furnished free to workers in the sugar industry, but the workers had to pay NKK seven to fifteen yen a month for food. The working week was reported to be seven days of eight and one-half hours in the slack season and nine and one-half hours in the busy season. The sugar workers got a few days off on national Japanese holidays, and occasionally when the sugar mill's machinery had to be cleaned. The share-cropping raisers of sugar cane gave to NKK from one-tenth to one-third of their crop, depending on the productivity of their plot of land. The remainder of the crop was sold to NKK at prices fixed, naturally, by NKK. It is not inaccurate to say that NKK owned not only the sugar mills which American naval gunfire blasted, and the sugar cane fields through which Marine and Army infantry advanced relentlessly, but also the very lives of the people of Saipan and Tinian. **END**

Heart of the sugar industry on Saipan, the refinery at Charan Kanoa was totally demolished by the withering fire of our invading forces. Shown above still burning, the big refinery processed sugar cane grown by poorly paid workers forming part of the vast "Sugar Cane Empire" run by Jap big business.

* Marine Corps Combat Correspondent.

Anzio Analysis

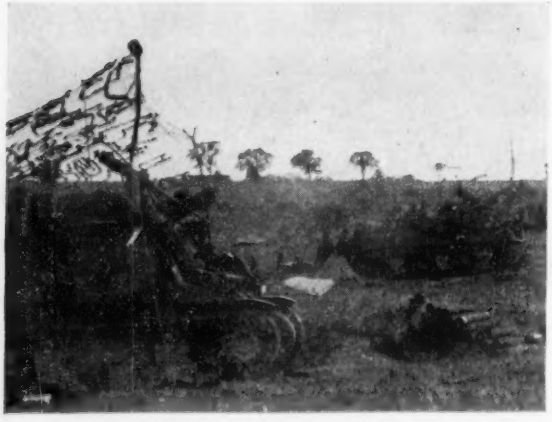
Marine officers will be interested in this account of the operation at Anzio. After the beachhead was established the Germans rallied but were defeated by massed artillery. *By Colonel E. M. Edmonson, U. S. A.*

WHEN the VIth Corps landed practically unopposed at Anzio January 20, we thought we had effectively outflanked the German Winter Line some seventy miles to the south, and anticipated little trouble pushing inland to the Alban Hills, where we would be astride enemy communications between Rommel and his forces opposing the remainder of the Fifth Army at Cassino.

Our initial force consisted of two reinforceed Infantry Divisions, one American and one British; about half of an American Armored Division, and certain Army and Corps service elements.

The initial beachhead was secured without much trouble. Its perimeter stretched about 50,000 yards, with both flanks resting on the sea. (See Sketch I.) The position was fairly strong, as our right flank rested along the Mussolini Canal while our left flank rested along the Molletta River. However, we had no defilade for artillery positions and were handicapped by swampy ground and lack of roads. The Germans had all the advantage of observation, being able to see all over the beachhead from surrounding hills. Our ground observation was limited generally to the east-west main road near our front lines. From this point the ground sloped gently downward toward the north for about 6,000 yards and then rose gradually to the Alban Hills. It was vital that we protect this observation at all costs as even a shallow enemy penetration would have put us in a bad way.

The terrain was unfavorable for tanks except in our center, along the main north-south road to the Alban Hills. We had destroyed most of the bridges over the Mussolini Canal and considered the stream along our left flank a fairly good tank obstacle. The difficulty was the extent of our front. We wanted to attack straight north toward the Alban Hills with one division, and toward the high ground beyond Cisterno with the other, with the object of securing the high ground and commanding the road net. Then our armor could break around the Alban Hills and disrupt German communications. To do this, however, required more troops; that is, more troops were required to give us a firm base from which to operate, and to fall back upon in case of necessity.



Tanks and tank destroyers reinforced artillery all along the Anzio war front.

British Fall Back to Original Line

We decided to put an engineer regiment on our left flank and a special service force on our right; to use our armor as a mobile reserve; to attack with the British Division toward the Alban Hills, and with the American Division toward the high ground beyond Cisterno. The armor was to follow the British and break around them as soon as maneuverable ground was reached.

The British poked a long slim finger up the north-south road, which was promptly attacked from both flanks by German tanks and infantry and almost cut off. (See Sketch.) Together with the armored reserve they managed to extricate themselves, but lost a good deal of equipment. The net result was that they fell back to the original beachhead line.

Special Units Do Great Job

The American Division had no better luck. They pushed a considerable force of rangers toward Cisterno under cover of darkness with the object of seizing the town and holding it until the division could arrive. German tanks and infantry caught them in the outskirts at dawn and cut them up. The follow-up attack found the Germans heavily entrenched along the railroad embankment just outside of Cisterno and was also stopped short of the town. This attack also fell back to the original beachhead line.

The Germans had not reacted as expected. Instead of giving up their winter line they held on bitterly at Cassino and rushed reinforcements to the Anzio area from northern Italy and France. We found ourselves in a tight spot and

were being hemmed in from all sides. Our left flank and center were particularly vulnerable. The Germans had concentrated a lot of artillery there and long range stuff was all around us. They watched us from surrounding hills and shot at anything that moved. Some that we could not reach were shelling the port, ammunition dumps, batteries, hospitals, and other installations all over the beachhead. Even their 88's could shoot over our heads into the sea. Casualties began to mount and the Germans closed in for the kill. Everyone dug in.

Before they could break in, another British Division arrived, and shortly afterward another American Division. This brightened the picture and allowed us to cover our perimeter a bit more strongly. It was still fairly thin at that, with no real reserve, and we still had to hold one flank with an Engineer Regiment and the other flank with the special service force. (See Sketch.) The Third Division had two Parachute Battalions attached, which enabled them to defend a considerable frontage. These Parachute Battalions were lightly armed, however, especially in suitable anti-tank weapons. The same applied to the special service force on our right flank. These special units were very fine combat troops, however, and did a magnificent job.

Tank Destroyers Back Up Artillery

At this time each division had its normal division artillery. The British have seventy-two 25-pounders with each division; that is, three field regiments of twenty-four guns each. In addition, they had one regiment of twenty-four self-propelled 105's. Each American Division had its organic artillery, consisting of three 105 battalions and one 155-mm howitzer battalion. The Armored Division had three battalions of self-propelled 105's. We had as corps artillery one battalion of self-propelled 105's, three battalions of 155-mm howitzer, three battalions of 155-mm guns, and a British medium regiment consisting of eight 4.5 guns and eight 5.5 howitzers. There was also one pack battalion on the beachhead belonging to one of the parachute battalions.

This sounds like considerable fire power, but we had to shoot outwards through almost 180° to cover the front, whereas the Germans could mass their artillery in a few areas and converge their fire on almost any part of our front. We had to be able to mass our fire in critical areas when necessary and yet give some support all along our perimeter. It became a nice problem in calculating just where the Germans would most likely strike in force. A study of the terrain, road net, and German artillery dispositions indicated they would most likely strike along the north-south road or from an area between Cisterno and Velletri.

An aerial view of the city of Anzio, where the unopposed landing was made.

There were several avenues of approach into our position betwen these two towns.

Intelligence reports indicated a continual build-up in German strength, and it was apparent that we were in for a tough defensive fight. The corps, therefore, issued appropriate orders.

The British were well-fixed for close supporting artillery, having seventy-two light guns behind each division. The Americans were rather weak, with only their organic artillery of thirty-six light guns and twelve mediums with each division.

We thickened our artillery all along the front by using tank destroyers as reinforcing artillery, and also tanks and antiaircraft artillery. Positions were surveyed in by regular artillery units, and the tank destroyers, tanks and antiaircraft artillery were tied into our fire control system and assigned a great many defensive concentrations. They were of great assistance in blocking attacks on various parts of the front and in delivering counterbattery and harassing fires.

The six battalions and one regiment of corps artillery were located and sited as shown in the accompanying sketch. (See Sketch 2.) The organization for combat and missions were as follows:

"A" Bn, General support, reinforce fires of 3rd Div.

"B" Bn, General support, reinforce fires of 45th Div.

"C" Bn, General support, reinforce fires of 45th Div. and 1st Div.

"D" Bn, General support.

"E" Bn, General support.

"F" Bn, General support.

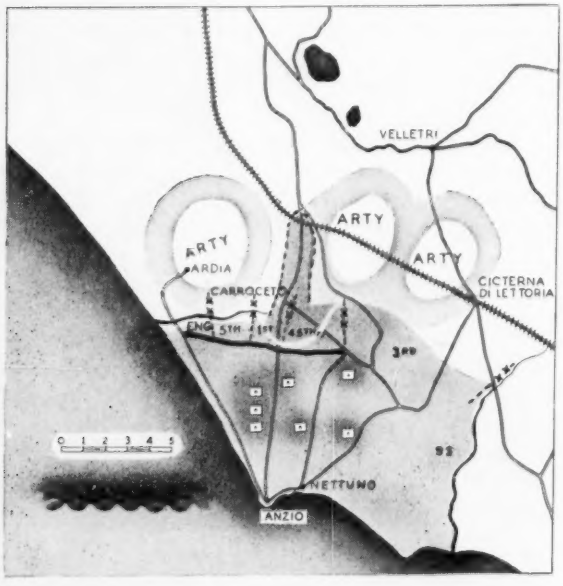
"G" Regt, General support, reinforce fires of First Division and Fifth Div in normal zone, reinforce fires of 45th Division in right contingent zone and Engineer Regt. in left contingent zone.

It will be noted from the sketch that the normal

zones of fire of the reinforcing battalions crossed each other at our front lines. Battalions were sited in this manner, so that they could deliver close supporting fires in the zones of the supported unit. Contingent zones were assigned so that the bulk of our fire could be massed to cover the north-south road and the approaches between Cisterno and Velletri. It was necessary to site a few long range weapons to our extreme flanks because the Germans would emplace a few long range guns in those areas and attempt to block unloading on the beaches. Naval gunfire was of great assistance on our flanks, being able to reach inland for about 16,000 yards. During the entire beachhead period, naval gunfire was employed extensively. Observation was by cub planes and high performance aircraft, working directly with the firing ships. In addition, we used shore fire control parties, both British and American, to adjust close-in naval fires.

Massed Fire Poured on Enemy

Counterbattery became our chief problem during this period. Our left flank was particularly vulnerable, as the Germans had concentrated a great deal of artillery in the wadis in that section. We worked it over day and night with our artillery, naval gunfire, and air bombardment. In handling counterbattery, we split the enemy front into four sectors, each comprising a certain number of known and suspected enemy batteries. Prearranged counterbattery programs were calculated each night covering each of these sectors, and counterbattery missions were assigned to all artillery, tank destroyers, tanks and anti-aircraft artillery that could reach these sectors. Thus, when any part of enemy artillery became active, we could silence it by simply calling for counterbattery program CHARLIE or ABLE, or whatever code name had been assigned to the particular sector involved. In this way we were able to deliver massive concentrations very quickly on enemy batteries.



The initial area of about 50,000 yards had both flanks placed beside the sea.

Stand By For All Out Attack

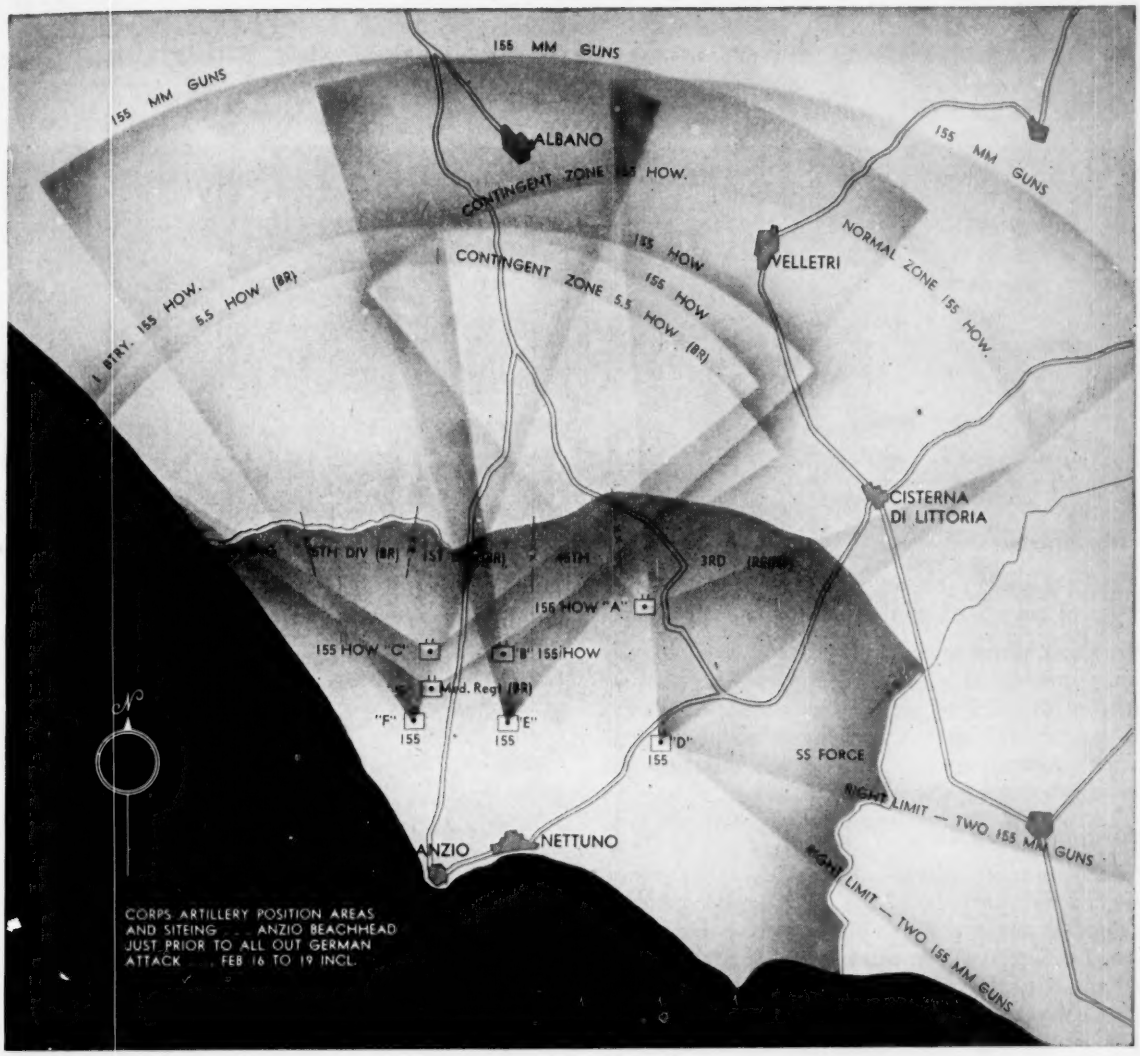
We also prepared very detailed defensive fire plans by blocking off our front in a like manner and setting up defensive concentrations for all artillery that could reach these areas, including TD's, tanks and antiaircraft. These concentrations were arranged into groups covering tactical localities and into series (two or more groups) covering larger areas. Battalions might have one or more concentrations in each group, depending upon the size of the area to be covered and the number of firing units which could reach the area. In this way, any attack which developed could be met with carefully prepared defensive fires, which extended well back into enemy territory and isolated that part of the battlefield. German assault groups often reached our lines only to find that they were cut off from their reserve, supporting weapons, ammunition, and so on. They were then easily dealt with by our infantry.

The Germans then resorted to infiltration tactics. Small groups would infiltrate during the night, set up machinegun positions, and try to remain concealed. If they were not ejected promptly, these groups would build up to company and battalion strength during succeeding nights. They like to get their fingers in your throat that way and then pour assault groups down the arm. They had worked up very close to our MLR by February 12th, and we expected an all-out attack at any time.

Ten German Divisions in the Line

In addition to their heavy artillery concentration opposing our left flank, there was another large group just off our right center and a third group just west of Cisterno. (See Sketch I.) All of these groups could support an attack from the north.

We kept track of their artillery by a system of multiple overlays to our counterbattery intelligence map. About fifty per cent of their battery locations were gotten from air photographs. Daily coverage was interpreted at the Fifth Army Photo Interpretation Center, and the coordinates of all enemy batteries discovered were radioed to us by our artillery liaison officer there. About twenty-five per cent were located by our Flash



Allied artillery had to mass fire in critical areas and also cover all the front. The Germans could cover the front from a few massed artillery areas.

and Sound Units and the remainder by ground and air observers. We had located quite a few big guns we could not reach, mostly German 170-mm.'s, and the air corps took care of these quite effectively. Our liaison officer at the airdrome would brief the pilots carefully and the German gun positions would be thoroughly dive bombed. During such air missions, our artillery fired a counterbattery program against all located German antiaircraft positions and helped our bombers a great deal.

During this period, our cub planes led a hectic life, being shot at by German ack-ack and chased by marauding German planes. We developed a radio warning system for them, and established "islands of safety" to which they could fly when pursued. These "islands of safety" were areas of antiaircraft weapons specifically charged with protecting the cubs when they hovered in their vicinity. A good many German pursuit planes were shot down after being lured into these areas by our cubs. In spite of all the difficulties, our cubs did a magnificent job, not only by adjusting artillery fire but by constantly maintaining patrols to warn us of tank attacks, assembly areas, and so on.

By February 10th, our Corps G-2 estimated that we were opposed by ten German Divisions, and that a massive attack from the north was imminent. The artillery estimate of the situation agreed with this deduction, as the German artillery was disposed to effectively support this operation.

By this time we had installed a very elaborate communication system. The corps artillery fire direction center had at least three wire channels to each artillery battalion, and at least two radio channels. Liaison, observation, and communica-

Circling above a ruined town south of Anzio is one of the artillery's unarmed cubs that did a magnificent job both by adjusting fire and maintaining patrols.

tions could mass the bulk of our artillery fire very quickly at any threatened point, and the carefully prepared defensive fire plans enabled us to deliver effective fire day or night, with or without observation. As far as was humanly possible, we were prepared.

Artillery Used Like Whip

Events marched to a crescendo. On the morning of February 16th, the big attack began and pounded down a narrow front from the north. Six Divisions. Wave after wave. It hit the front of the 45th Division and the British First Division. We met it with massed artillery fire, but the Huns kept coming. They were sure they could cut us in two and charged savagely. Time and again we caught them forming up and massed artillery on them. Our troops and the British were forced back little by little, fighting stubbornly. The Huns forced a mile deep wedge into our lines. (See Sketch I.)

Our artillery positions were their first objective. The second day our air force ripped into them. It was beautiful to see the dive bombers slant downward and dive viciously, then to watch the B-17's sail majestically overhead, ignoring enemy flak. They seemed to go so slowly. Several were hit and crumpled. One exploded completely, but the battlefield below was an inferno. No one could see to adjust artillery fire, so we swung it back and forth like a flail.

Turning Point of Campaign

The third day was the same, and the fourth also. Their final effort was peculiar. A German battalion had been told that we were evacuating the beach. This was silly on the face of it, as we had no way of getting off, but the Heinies will believe anything. This battalion put on clean uniforms and marched toward our lines in a column on the road.

A Major General screamed over the radio: "What the hell is going on around here? How long are we going to let these damn Heinies parade into our line?"

That German battalion got within fifty yards of two tanks, which were the spearhead of our counterattack launched toward the flank of the penetration. The tanks opened up at about the same time an artillery observer in a cub plane massed 150 artillery pieces on them. The German battalion melted away, and with it any remaining hope the Germans had. They broke. They had shot their bolt at terrific cost to themselves. Six divisions were cut to pieces. The remaining troops were so badly mauled and shocked they were incapable of further offensive action. As things turned out, that was the turning point on the Anzio beachhead.

The Jeep Handles Another Job

Still another use for the jeep has been found. Santa Fe Railway trains hauling war materials for the Pacific theatre were recently held up when a huge turntable at Barstow, California, went out of commission. A jeep from the Marine detachment there was coupled to it, and after a few test tugs the huge turntable was moved into place.—S/Sgt. Charlie Evans, Marine Corps Combat Correspondent.

THIS MONTH'S COVER

Re-prints of this cover suitable for framing will be furnished upon receipt of 10c in cash or stamps to cover cost of handling and mailing.

Belleau Wood

★ ★ ★

"RETREAT, hell, we just got here!" Marines of the Second Division were moving toward Belleau Wood when that famous expression was first uttered. The speaker was a Marine officer, replying to a French officer who ordered our troops to join in the general retreat from that sector.

German successes there had been great, but they were halted at the line held by the Second Division. Then, on June 6, 1918, a general advance was ordered, which involved the Marine brigade in some of the most desperate fighting of World War I.

The first advance was made by part of the First Battalion, Fifth Marines, on an 800-yard front. After this successful beginning, Major General James G. Harbord, U. S. A., ordered an attack to capture Belleau Wood and take the town of Bouresches, to straighten his front line.

Two German Divisions Were Waiting

The wood was about a mile long and irregular in shape, and was held by two German divisions who were alerted and ready for the attack. Early on the evening of June 6, the Marines moved forward. Artillery fire had not been good, and losses were terrific. Progress was made only in a point of the wood projecting toward Lucy-le Bocage, though Bouresches was taken.

Three days later, the First Battalion, Sixth Marines, attacked on the southern half of the wood, this time with adequate artillery support, and moved up to the German main line of resistance. Plans were then made for another determined attack to clear the entire wood. This advance, on June 11, was stopped with heavy losses and still no foothold in the larger northern part of Belleau Wood. However, the Germans were driven out of the southern part with a loss of nearly 800.

The next evening the Marines, reinforced, started north again. Hitting the German position, their front line broke into small groups, which worked forward, eliminating machinegun nests as they advanced. They went through the German line, disorganizing it, and pushed on to the northeastern part of the wood. At 0400 the Germans struck back. In this counterattack mustard gas was used, which caused about 450 Marine casualties in Bouresches and the southeastern edge of Belleau Wood.

Marines Suffer Heavy Losses

The Marines were in a precarious position. The brigade had lost heavily, and the Germans were able to reinforce that part of the wood they still held. However, the enemy made no further counterattacks, but kept up harassing artillery fire and gassing. The Second Battalion, Fifth Marines, was reduced to about one-third. The First Battalion, Fifth Marines, joined it. The Second Battalion, Sixth Marines, started out to reinforce these battalions, but lost so heavily during a gas attack that it did not have enough men to effect the relief.

All three battalions remained in the wood, and the position was reorganized. Shortly after, Army infantry and a French division relieved the Marines, and for a time the front line remained unchanged. On June 21, the Marines started returning to the line when the Third Battalion, Fifth Marines, took over the center battalion area in the northern part of the wood. The next night the Third Battalion, Sixth Marines, went into the line along the eastern edge. The Second Battalion, Fifth Marines, moved into the front line on the extreme left of the division sector on the night of June 23.

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Headquarters, U.S.M.C., Washington 25, D. C.
Editorial Office: 1121-14th St., N. W., Washington 5, D. C.
Telephone: District 5213

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That night a new drive started after ineffective preparation with mortars and rifle grenades. There were heavy casualties, and no ground was gained. Artillery preparation was required, and, for the next drive, on June 25, it was provided. After heavy preliminary fires, a rolling barrage crept through Belleau Wood, followed by the Third Battalion, Fifth Marines. By 2230, the battalion had possession of the wood except for a narrow fringe held by a few scattered machine-gun groups, which were captured the next day.

With the clearing of Belleau Wood, offensive operations by the Marines ended in that sector. At the end of the battle, on June 26, General Pershing said: "The Gettysburg of this war has now been fought." Later, Clemenceau admitted that the stand made by the Second Division and other American divisions had saved Paris. For their bravery the men of the Marine Brigade received a citation of the French Army, and the name of the wood was changd to Bois de la Brigade de Marine.

However, it was necessary to pay a high price for all these honors. The Marine Brigade in taking Belleau Wood suffered heavily. It sustained 4,000 casualties representing 55 per cent of the original strength of the outfit.

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How to Identify and Make Use of Captured Japanese Equipment

By W. H. B. Smith

IT is important now—and it will become increasingly important—for Marines to understand Japanese equipment and to know how to use it. The supply routes to points where we have to fight the Japs are long. They will be even longer before we finally fold them up. And every round of ammunition transported requires its share of manpower, equipment, sweat, and money to move.

Even if Winston Churchill's guess is right and the Japanese are licked in 1946—and that is a long way off!—it is inevitable that Marines will be fighting mop-up and guerrilla actions for quite some time. In these countless future small actions, a knowledge of enemy equipment will be even more valuable to the individual Marine than it is in full scale operations.

How Others Use Captured Arms

Study Russian newsreels and you must be impressed with the way our Allies utilize captured German small arms. In a hundred engagements they have been able to advance beyond their supply bases by turning captured material against the enemy. The British produce Besa machineguns and Sten, Austen, and Lanchester submachineguns in calibers which permit them to use captured German small arms ammunition. And the Germans in their turn have done the same thing. An entire division captured in France was recently reported equipped with Russian arms. The Germans provide special markings and identification for Italian material now being used against us in Northern Italy, so large are the quantities of stores they are utilizing. As their supplies from Germany are more and more reduced, they use increasingly what is at hand. Finally, the Japanese themselves are using British Bren, Lewis, and Vickers guns captured at Hong Kong and Singapore to such an extent that they are manufacturing British-type .303 cartridges for these weapons.

We all know that we have more equipment and better equipment than the Japs opposing us. That is as it should be, for we are the mightiest industrial nation the world has yet seen. We are all justifiably proud of that equipment. But we must not make the mistake of underrating the equipment of the enemy. Much of it is terrible. Some of it is good. *All* of it is lethal, however. That is something we should never for a moment forget.

Now Intelligence Officers can't be everywhere. But Marines *are* everywhere. If they can recognize the primary types of enemy equipment at sight and pass the information on, if they know the *common* types well enough that they will automatically pass on information about the *new* or *uncommon* types they run up against, their value to themselves and to the country can go even beyond present bounds.

Let's take a practical instance. If you know what a Jap Model 96 Light machinegun looks like (and if you don't, the chances are you will—the Japs seem to have plenty of them!), you know when you see one that a .256 (6.5-mm) gun is operating against you. Now if you see what looks like the same gun, but it is fitted with a common flash hider on the muzzle, a folding one-legged mount below the buttplate, and a magazine not quite so curved, then you know the gun is a Model 99 shooting their new .303 (7.7-mm) cartridge. You have some definite military information to be passed back—and you know that you'd better have more dirt, logs, or concrete between you and the high powered bullets.

Let's go a step further. Suppose you land in a foxhole or a blockhouse where there is a Model 96 or a Model 99. After duly disposing of the previous occupants, do you know what to do with the gun? How do you insert the magazine? It's not like the BAR. Do you know how to throw off the safety so you can go into instant operation? Suppose the gun overheats, do you know how to replace the barrel? You can change it in a matter of seconds if you do; the gun isn't worth a damn if you can't. Suppose you have plenty of Jap ammunition available and you're short on .30's, can you dismount the Jap piece for cleaning to keep it going? It's simple if you know how; and you've got a useless, fouled-up piece if you don't. If you don't want to use or carry off the gun, a knowledge of how to pull out the guts and throw them away will stop anyone else from using them.

Two Guns Most Portable

Presented with this article are pictures and descriptions from which you can learn *how to recognize* these weapons and *how to use them* in an emergency. Of all the Jap machine weapons, the best, most portable, most likely to be encountered in jungle work, are the models (or "Types," as they are often called) 96 and 99. While we will

Model 96 LMG

consider them separately, let's state right here that they are so much alike, except for caliber, that if you can operate the one you know all you need to use the other, with just one *exception.* The barrel locking bolt on the Model 96 has a lever which must be turned up and rotated toward the muzzle to free the barrel from the receiver. The Model 99 has a six-sided nut which must be turned *forward* to permit the bolt to be *pulled out to the left* to free the barrel. If this nut is turned toward the butt, it acts as a headspace adjustment.

Japanese Model 96 Light Machinegun

AMMUNITION: This gun uses the same cartridge as the Model 38 (Arisaka) .256 (6.5-mm.) rifle. It has a rimmed case, which requires loading LMG magazines carefully so each cartridge rim will be just ahead of the one below it. The gun will jam if this is not done. The bullet is cupro-nickel jacketed, and weighs 139 grains, in the ball ammunition. The standard charge is about 33 grains of powder. Fired in the standard rifle, it is flashless. Muzzle velocity is about 2,400 feet per second when used in the Model 96 LMG. It may reach 2,700 feet in the long barreled rifle. Cartridges come in clips of five, three clips to a cardboard carton, 100 cartons to the wooden box—a total of 1,500 rounds. They are individually banded around the bullet at the point where it enters the case as follows: Pink band for ball ammunition; green band for tracer; and black band for armor piercer.

(Note: If the label on the cartridge carton bears a "G" in a circle, the cartridges are short loaded specially for the earlier type of Jap LMG, the Model 11 [Nambu] Hopper-Fed. While these cartridges may be used in the Model 96 LMG, stoppages will occur and the sight adjustments will have to be allowed for.)

THE GUN: This gun weighs about 19½ pounds with magazine. It is about 42 inches overall in length. The barrel is about 22 inches, and is rifled four grooves and four lands right hand twist. The barrel has cooling fins running almost its entire exposed length. The operating handle, used to cock the gun, is on the left side, as in the BAR. The safety is also on the left side, at the forward end of the trigger guard. When safety is in horizontal position, the weapon is ready to fire. Pushing it up to the vertical position sets the gun on safety.

Like the BAR, this gun fires from an open bolt. When the trigger is pressed, the bolt travels forward with the piston and attached slide to chamber and fire a cartridge. *SO NEVER TRY TO LOWER THE BOLT WHEN A MAGAZINE IS IN THE GUN.* The magazine holds

thirty rounds. It is mounted on top of the gun.

Note that this weapon has a spring-held dust cover over the magazine opening in the top of the receiver. This cover must be pushed up from the lefthand side and held while the forward end of the magazine is inserted in the magazine opening. Then the rear end of the magazine is pushed down until it snaps the magazine catch into place.

Releasing the Magazine

The magazine catch release is a piece of metal with a large hold in it, and is positioned directly behind the rear of the magazine opening. Thrusting it forward releases the magazine, which may then be pushed forward up and out of the gun.

The carrying handle is fixed to the barrel and has a wooden carrying piece. It is directly in front of the magazine.

The barrel release lock is on the receiver directly behind the carrying handle. It has a button attached to a lever which is part of a bolt which passes through the receiver and through a slot cut in the top of the barrel to lock it in place.

A folding bipod mount 16 inches high is attached at the front end. It can be removed.

A bayonet lug just below the gas cylinder will take the standard Jap Army bayonet. For anyone but a real giant, using the bayonet is quite a job.

The sights on this gun have to be offset to permit aiming past the line of the magazine and the carrying handle. The rear sight is a drum attachment on the rear left of the receiver. It is graduated from 200 to 1600 meters, and differs from the British Bren (from which it was copied) in that it allows windage adjustment of ten points right or left. The rear of the receiver is also dovetailed to permit the use of a special telescope sight of 2½ power. This scope has graduations on its reticule from 100 to 1,500 meters. (NOTE: To use this telescope sight, it is necessary to raise the muzzle of the gun until the target registers at the proper meter-mark. No windage with this sight. It does, however, have circles etched on the reticule for firing at airplanes; and also a mil scale. It is a prismatic scope, as required to provide the offset necessary to sight around the magazine and carrying handle.)

Regulating the Amount of Gas

The gun is operated by gas on the Hotchkiss principle. The amount of gas tapped off to operate the gun can be regulated easily by adjusting the nut at the forward end of the gas cylinder below the barrel. There are five ports. Number one is the smallest, two the next larger, and so on. Two or three are the normal operating ports; the larger ones are used if the gun gets sluggish and it is not practicable to stop to clean it.

The lock is a hollow square steel piece around the piston slide, which is lifted and lowered as the gun operates to lock and unlock. It positively prevents the gun from firing except when fully locked.

This is a full-automatic gun only. There is no change lever for single shot fire. The gun will fire as long as the trigger is held and cartridges are fed from the magazine.

HOW TO LOAD THIS GUN: Starting with an empty magazine, if you have the magazine loader which is part of the equipment of the Model 96, fill the loader with 6.5-mm. rifle clips and compress loading lever to strip in and oil the cartridges (the oiler is built into the loader and functions automatically). The empty clips will drop out the bottom of the loader. Insert 30 cartridges.

If you do not have a loader, hold the magazine with its forward end toward you. Place a cartridge on the follower just a little ahead of its final position. Force it straight down to compress the magazine spring, then slide it back as far as it will go so it will be caught and held by the magazine lip. Repeat until magazine is filled. Be careful to see that the rim of each cartridge rests *ahead* of the one below it; otherwise, feed jams will occur.

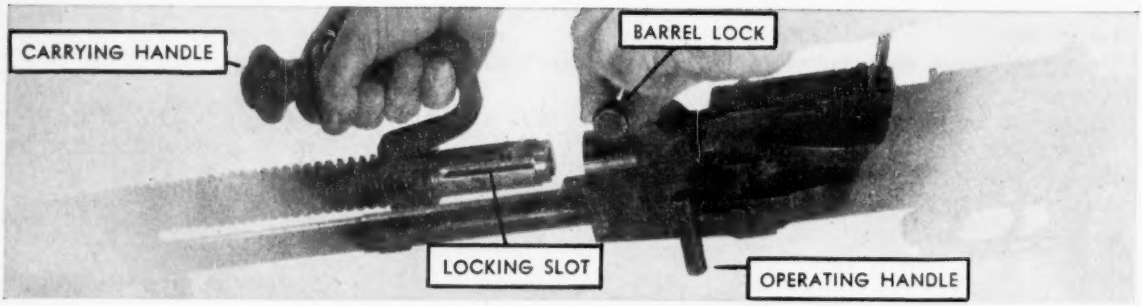
TO INSERT MAGAZINE: First lift the hinged dust cover on top of the receiver just ahead of the magazine catch; while holding it open, insert the bullet end of the magazine in the feedway. Then push the rear end down until the lock catches.

TO COCK THE GUN: Pull the charging handle on the left side as far back as it will go. (Note: Unlike the BAR, when the handle on this gun is drawn back it pulls its attached guide piece back past the end of the receiver. Keep your face out of the way when pulling this handle back.) Then push the handle fully forward. If this is not done, the bolt will carry it forward, but the gun may misfire from too light a striker blow.

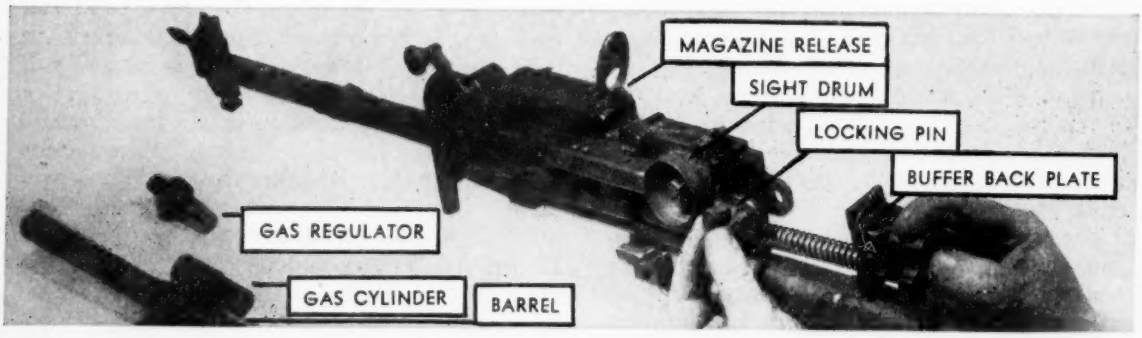
TO FIRE: See that the safety at the left front end of the trigger guard is in the down, horizontal position. Press the trigger. The gun will fire as long as the trigger is held and cartridges are fed. The dust cover over the ejection port will open automatically to eject from the right side of the receiver.

WHEN GUN IS EMPTY: The bolt will stay closed. There is no hold-open device on this weapon.

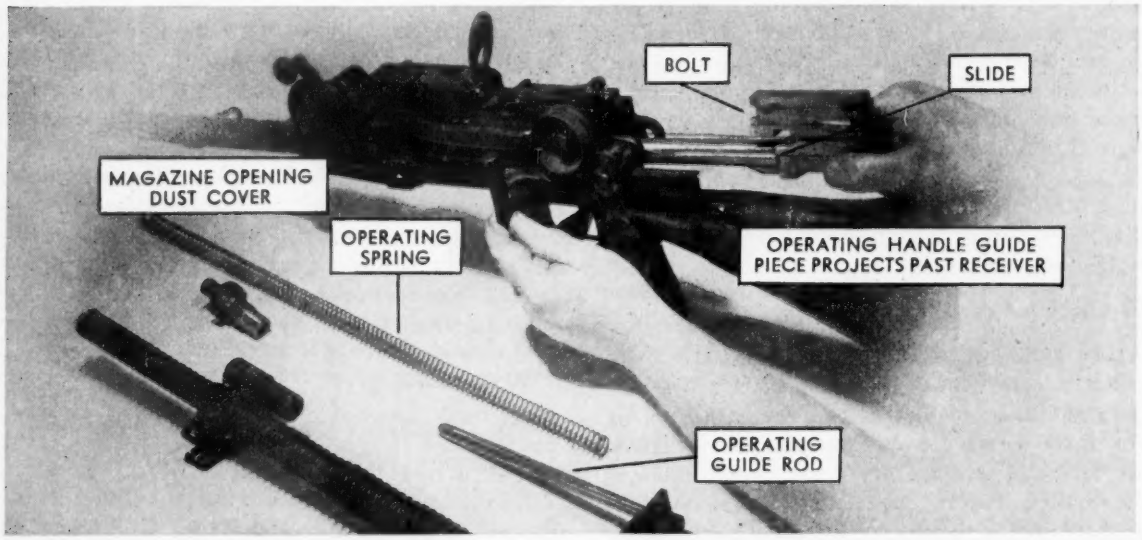
TO REMOVE EMPTY MAGAZINE: Push forward with open hand against the top of the magazine locking catch. This will free the magazine. While maintaining pressure on the catch, with the fingers tip the magazine forward and lift it up and out of the gun.



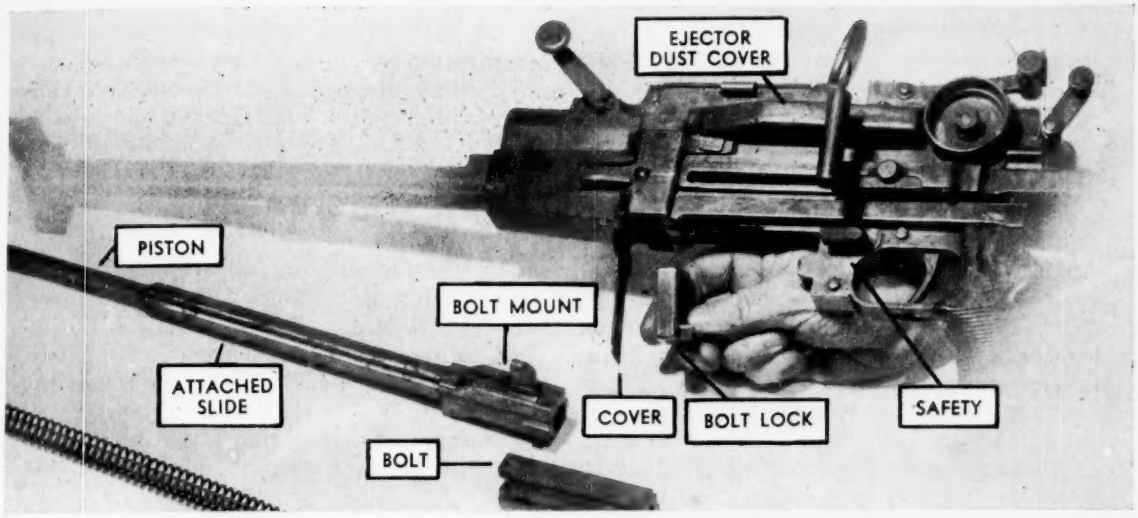
TO REMOVE OR REPLACE BARREL of Japanese Model 96 light machinegun, turn lever of barrel lock bolt up and to front as far as it will go. This revolves bolt out of its locking slot cut in top of barrel, and unlocks barrel. Push straight ahead on carrying handle, and barrel comes out. If barrel sticks, strike sharply against metal rear of carrying handle and drive it straight ahead. Gas cylinder and its adjusting nut may be removed if desired. Note locking slot on top of barrel. These barrels are not threaded, but are held by a bolt passing through transverse slot.



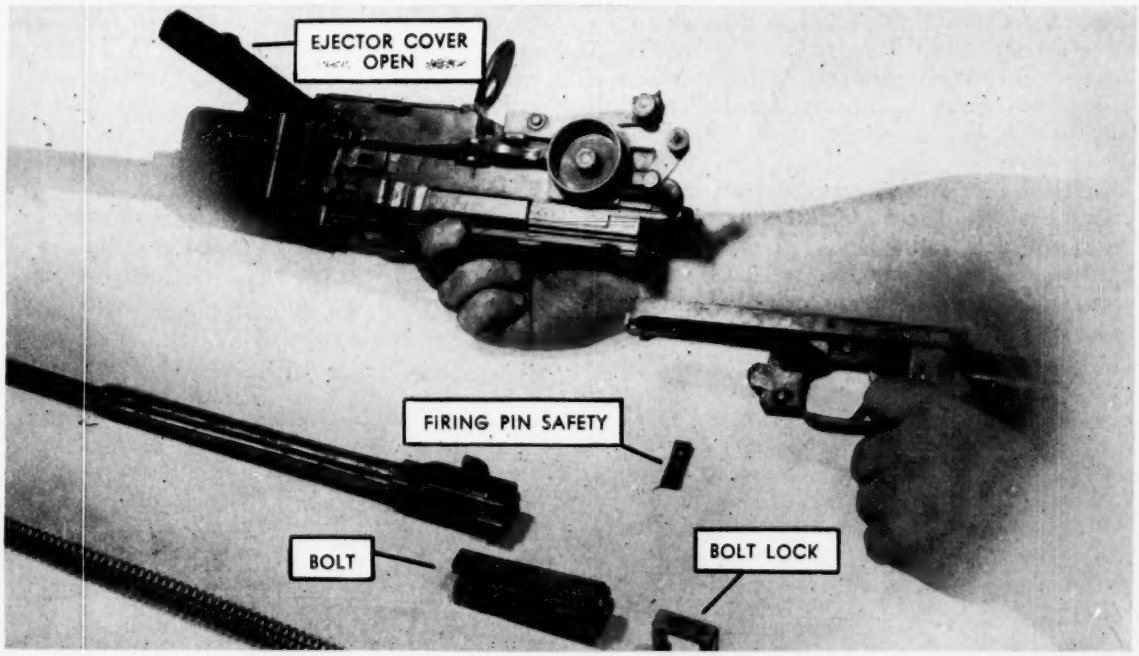
TO REMOVE OPERATING SPRING AND BUFFER ASSEMBLY turn up the lever on buffer locking pin. This passes through the receiver from left to right, just behind the rear sight drum. Turn the lever as far as possible. Then pull the pin out to the left. This will release the buffer housing, guide, and operating spring which may be withdrawn to the rear of the weapon.



TO REMOVE THE BOLT AND PISTON ASSEMBLY it is first necessary to pull back the operating handle. This will draw the assembly back so that it can be withdrawn from the rear.



TO REMOVE LOCK open the dust cover in the bottom of receiver, directly below the barrel lock. When this is done the square bolt lock will normally fall out. However, if the gun is fouled it sometimes becomes necessary to reach into the receiver and pull out the square bolt lock.



TO REMOVE TRIGGER AND STOCK ASSEMBLY, a locking pin passes through the trigger frame and the receiver at the rear, below the line of the buffer locking pin. Unscrew the covering nut and drive this out. The trigger and stock assembly may be pulled out to the rear.

Further Dismounting

1. Turning the bipod 180 degrees right or left will permit its removal.
2. Breechblock may be lifted off the hammer post on top of the piston extension.
3. Firing pin may be readily removed with point of a bullet by pushing its lug to the rear and lifting out pin.
4. In a slot in the breechblock is a special lug. This may be pushed out. This piece serves as a sort of firing pin safety when the gun is functioning. Be careful to see that it is replaced when the gun is assembled.
5. Extractor and spring may be removed with point of a bullet if necessary.

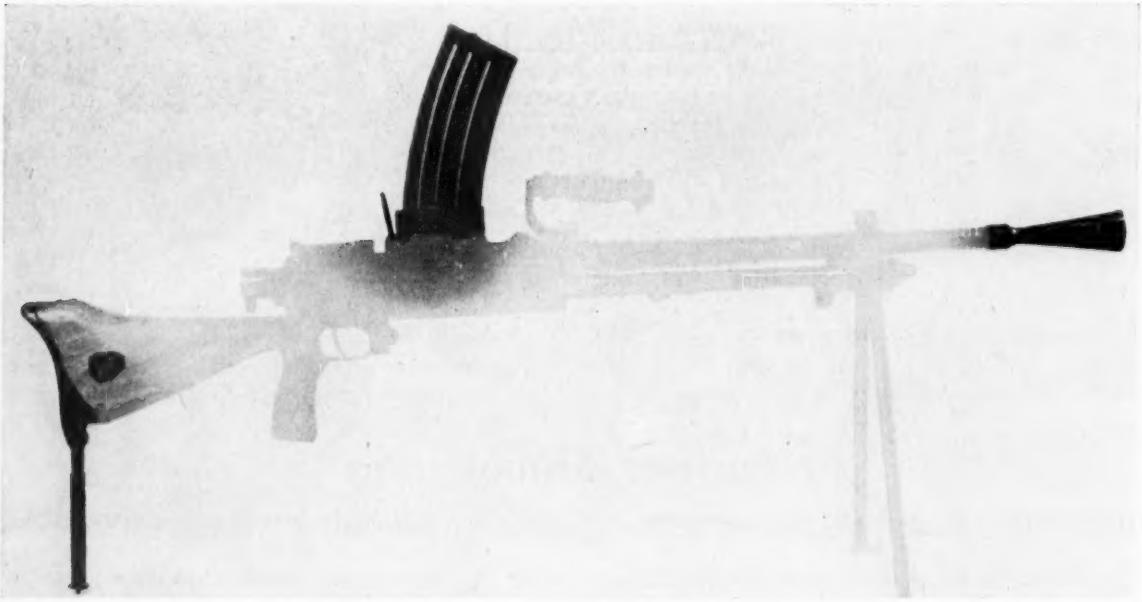
6. Ejector on this gun is mounted under a dust cover on the left side of the receiver. This cover may be swung forward on its hinge by pressing the lock on top of the cover. Driving out the pivot pin permits the ejector to be lifted out.
7. Further dismounting is unnecessary. If you can dismount to this point, the rest is easy.

Japanese Model 99 Light Machinegun

AMMUNITION: This gun uses the new Japanese .303 ammunition, which is rimless. It may be identified rapidly by comparing it with one of our own .30 caliber cartridges, which it resembles very closely. It is a quarter of an inch shorter than ours, and is necked more sharply. The bullet weighs 175 grains. Powder is the same as that used in the 6.5-mm. ammunition. Muzzle velocity is in the neighborhood of 2,300 feet per second when used in LMG. In the rifle, with its longer barrel, this cartridge approaches 2,600 feet per second. These cartridges are normally packed in standard Springfield-type clips of five, three clips to each cardboard carton. One hundred of these cartons are then packed in a wooden case, which is equipped with rope carrying handles. A narrow line of pink around the bullet where it enters the neck of the cartridge case indicates ball ammunition. Green indicates tracers. Black means armor-piercers. (Note: It is extremely important that these elementary cartridge facts be known. The cartridges described can be used in the Jap LMG 99 and in the Jap RIFLE 99. They can also be used in the Jap Heavy M. G. 92, which normally uses semi-rim ammunition. In an emergency, the Jap semi-rim .303 (7-mm.) cartridge provided for their Model 92 heavy machinegun can be *individually loaded* in the LMG 99. It will not work through the magazine. And it will not work in the RIFLE 99, as the bolt will not close on it. Besides this semi-rim Japanese .303, the enemy also uses regular British .303 ammunition, both captured material and their own manufacture.)

THE GUN: While this gun is heavier and somewhat larger than the Model 96, it so closely resembles it that its identifying characteristics should be memorized. (1) It has a flashhider—not present in the 96. (2) It has a stock rest attached to the lower end of the butt plate. This may be folded in under the stock. (3) The magazine is straighter, as this gun uses rimless ammunition. (4) Instead of a turning lever and bolt for barrel remover, as in the Model 96, this gun has a nut on the left side of the receiver which is turned to the front, then pulled out to free the barrel for removal. (5) The dust cover over the ejection port must be closed by hand (in the earlier model it opens and closes automatically.)

The weight is about 22 lbs. Overall length



Model 99 LMG

This weapon, showing flash hider, stock support, and slightly curved magazine distinguishing it from Model 96 (.256 cal.), is disassembled like Model 96.

46¾ inches including flashhider which is an integral part. Barrel length about 22 inches. Sight graduated from 200 to 1,500 meters. Cyclic rate of fire from 700 to 850, depending on spring tension, gas adjustment and ammunition. Safety is the same as in the LMG 96.

The safety is a small lever on the left side of the trigger guard just ahead of the trigger. When it is turned up to the vertical position it locks the sear and prevents the weapon from being fired. When it is pushed down to the horizontal position the gun is ready to fire full automatic.

Operation of Models 96 and 99

While this article is intended to help you identify and use these guns, a short description of their operating principles may be of interest. Guns are like automobiles—if you know what they are and how to drive them, you can get along, while things are going right, without any further knowledge. But, if you know what makes them tick besides the fuel you feed into them, your respect increases with understanding.

PREPARING TO FIRE: The cartridges inserted in the magazine compress the spring below the platform (follower) to provide the power to force individual cartridges into line with the breechblock, one by one.

OPERATING HANDLE: Pulling back the operating handle draws the piston, its attached slide, and breechblock mounted on top of the slide to the rear. This action also, of course, unlocks the gun and compresses the operating spring around its guide and back against the buffer plate (or back plate). The slide rides over the sear, which then engages in a notch on the underside of the slide to hold all the moving members back.

SAFETY: When safety is applied, it blocks the movement of the lever connecting the trigger and the sear, and prevents the sear from being released from its notch in the slide. When it is pushed to the firing position, it presents a cutaway which permits the sear lever to move down and hook up the trigger and sear.

TRIGGER: When the trigger is pressed, the heel of the trigger, which is hooked up by a lever to the sear, moves the rear of the pivoted lever upward, thereby lowering the front end, which forces the sear down to free the slide. The sear spring, immediately upon the trigger being released, brings the sear, sear lever, and trigger back to firing hook-up.

SLIDE, PISTON, AND BOLT ASSEMBLY: The slide attached to the piston and carrying the breechblock on top of it is forced forward by the compressed operating spring. A feed rib on top of the bolt strips a cartridge into the firing chamber, and snaps the extractor into place as the bolt reaches its foremost position. At this point, the square lock around the slide is cammed up to lock in a cut in the lower face of the bolt, securing it to the receiver. The slide continues to go forward, and drives the firing pin ahead to fire the cartridge.

GAS ACTION, UNLOCKING, EXTRACTION AND EJECTION: As the bullet passes over the gas port drilled in the barrel, gas rushes through the port to expand against the head of the gas piston which is attached to the slide. This starts the assembly to the rear, with the bolt still securely locked to the receiver by the bolt lock; and this initial action forces the slide to withdraw the firing pin. This movement of the slide is about ¼ inch. The continued movement causes the piston to cam down the locking square. The bolt now travels back with the slide and piston, carrying the empty cartridge case gripped by the extractor. When the empty case has cleared the chamber sufficiently, the bolt hits the rear end of the pivoted Lewis-type ejector and pushes it out. The front end of the ejector is thereby struck sharply against the empty to hurl it out the ejection port. In the Model 96, a spring closes the ejection port dust cover after each ejection. In the Model 99, this cover must be closed by hand.

BUFFER: When the bolt strikes the buffer, the operating spring is fully compressed for the next forward movement. Unless the trigger is released, the gun will fire again.

We have all heard so much and so often about the Japanese system of copying that a word on the construction of these LMG's may be of some additional interest. The gas action is essentially that of the French Hotchkiss. The magazine, feeding system, and stock are, to a large degree, patterned after the Czech Brno and its English development, the Bren gun. The ejector is styled after the American Lewis. Until recently, the lock was considered of Japanese design—one point of originality, anyway. Now even that disappears, for it seems that the lock was developed from the early Russian Siminov semi-automatic rifle, already superseded by the Russian Tokarev.

By any standards, however, these are good, light machineguns. Don't make any mistake about that. Only one mistake is necessary to prevent ever being able to make another.

CORRECTION

In the December issue of The Marine Corps GAZETTE, the doctrine, "Fighting Truths for Marines," was erroneously credited to the Sixth Marine Division. The original of this valuable and instructive document was prepared by the Third Division.

Observations on Saipan

An account of the landing on Saipan and operations there from the time the LVTs hit the beach until the south end was crossed and the long march begun to the north. *By Lt. Col. B. A. Hochmuth*

THE big day had arrived. It was the 15th of June, 1944, and Saipan was to be invaded by American forces. H Hour for the landing had been set for 0830 but this was delayed for about thirty minutes. As the waves of LVTs crossed the reef and approached the beach the intensity of Japanese mortar and artillery fire increased until the beaches were receiving a tremendous barrage, which covered the area with smoke, dust and haze. Somewhere between 0845 and 0900, the first LVTs hit the beach, and the confusion of battle took over.

Forces landing on the southern beach near Agingan Point received murderous flanking fire and were driven approximately 500 yards to the north. Despite the loss of many LVTs on the beach and reef, it was estimated that approximately 10,000 assault troops had been placed on the beachhead within thirty minutes of the landing.

Naval gun fire and air bombardment that had been pounding the island since dawn now lifted beyond the 0-1 line, and the Japanese could freely observe the effect of their fires. It was these fires that disabled a large number of our LVTs and caused most of the casualties on D-Day. Only a few of the LVTs were able to reach the 0-1 line and disembark the crews. The situation ashore was critical, and, as the information ashore became increasingly indefinite, the control craft carrying the Regimental Commanders closed in to within 100 yards of the reef.

Mopping up in Garapan, this Marine crew fires a gun from behind an enemy truck.

Trouble Encountered at the Reef

By 1000, tanks in LCMs arrived at the reef but found it was almost impossible to get in through the Charan-Kanoa Channel. Several of the LCMs capsized and lost their tanks outside the reef. Nearly all of the 4th Division tanks were unloaded from LCMs directly on the edge of the reef and proceeded in over the reef under their own power. Some of them had to be abandoned there. The arrival of the tanks improved matters somewhat on the beach, but it was found that a counter attack was forming in the vicinity of Aslito Air Field. This presented a problem, since it was difficult to move the tanks from the Blue Beaches, where they had landed, to the southern end of the beachhead, owing to the number of troops and LVTs congesting the area. A large air strike was ordered in to take care of the pending counter attack and the movement of Japanese troops near the air field.

Further assistance was available by 1400, when two battalions of artillery were in position with most of their guns. They immediately took under fire all artillery batteries and mortar positions located by aerial observers. Most of the Jap artillery and mortar positions were found to be in the valley running down the middle of the island, and, with their observers in the vicinity of the 0-1 Line, they had perfect observation on our beachhead.

Efforts to Increase the Beachhead

Throughout D-Day, Naval gun fire support ships and air kept the entire island and the north part of Tinian under continuous fire to prevent the Japanese from moving any of the reinforcements in the direction of the beachhead. By 1500, the CPs of the assault regiments were ashore and the reserve regiments were ordered in or were on their way in. Throughout the afternoon, every effort was made to increase the size of the beachhead and reach the 0-1 Line. Only the rear echelon remained aboard ship for the night.

At 1830 word was passed by word of mouth through the ship for all antiaircraft crews to man their guns and prepare to repel an ex-

A demolition charge paves the way for Marine riflemen, who soon will advance to clean up any Japs who survived this blasting of their position on Saipan.

pected air attack. All doors and hatches aboard the ship were secured, the ship was ready and we were under way. Cruisers, destroyers and battleships moved in along the transports and cargo ships to offer their AA protection. At 1848 the first plane was sighted. All ships in the convoy opened up in a terrific antiaircraft barrage. The planes were driven off and not a bomb was dropped on our ships.

The convoy remained under way for the night and was back in the transport area early the next morning. Urgent requests for critical supplies came in all morning. It was on one of the critical supply boats that I went ashore with the Air Officer and the remainder of the Division CP. Transferring to an LVT, we were directed to the congested channel off Charon-Kanoa, which the Japanese had failed to block. After passing the channel, we proceeded south about 300 yards off the beach, and when we were opposite the Division CP we headed directly for the beach. The Division CP was set up about fifty yards inland. When I was established ashore, I went around to the various staff members and listened as they directed their part in the operation. By this time it was getting dark. Everyone was well dug in, and there was very little movement during the night.

Toward morning, reports continued to come in of counter attacks from the north, and by daybreak we knew that the 2d Division had stopped the counter attack and had destroyed some thirty Jap tanks. Just as day broke, Japanese landing craft were reported attacking, and orders were passed to man the beach defenses. The artillery pieces in the vicinity of the Division CP were turned toward the sea and several bazookas were moved up to the beach line. As observation improved, we found that this report was false.

In Readiness for Air Raid

After visiting the Division Internment Camp, I went south on the beach in the direction of the Division CP. The beaches were still congested, and the wounded were being evacuated. Fresh troops and supplies were arriving, and water distillation units were being set up and operated. Late that afternoon, I returned to the Division CP and was informed that we could expect an air raid within an hour or so. Our situation ashore had improved during the day, and preparations were being made to repel a large counter attack that night.

At 1730 the air raid came, but our planes were ready for them and took them under attack. As far as I know, only two Jap planes got by our air defense, and one of these strafed the

Division CP. After the air attack, a Division conference was called by the Chief of Staff of the four executive members.

All units of the 4th Division had been thrown in the line throughout the day, and the Division Reserve for the night consisted of one battalion from the 165th Infantry. All that night our artillery fired. Our front lines had held during the night against several counter attacks and infiltrations, and on the morning of the 18th the 4th Division employed all of its operational tanks in the attack, which was set to jump off at 0830.

Enemy opposition was generally weakened during the day, as he was overrun in all regions except the left flank, which continued strong. The Japs had retired to the north to organize the higher ground, with the southern end of their positions on our left flank. By 1400, we had pushed clear across the island to the east coast. This was our first major victory, and we had cut off at least part of the Japanese forces in the area to the south.

Gas Alarm Proves False

During the afternoon the gas alarm was sounded. This alarm later proved to be false, when it was found that a half-track had fired into a cave which contained a picric acid plant. At 1655 the air alert was again sounded, and several planes appeared at the southern part of the island. By 1800 the air attack was over.

The Division up to this time had taken 1,600 prisoners, of which only six were military. Enemy casualties were difficult to determine, as the Japanese continued to evacuate their wounded and bury their dead. Prior to our landing on Saipan, it had been estimated that there were about 20,000 troops included in the Japanese defense forces. Reports continued to come in during the first three or four days of the operation, from Jap prisoners, that there were from 30,000 to 60,000 Japanese defending Saipan.

The Corps Reserve for the operation started to land late on the afternoon of D-Day plus 1. On the morning of D plus 2, the 2d and 4th Marine Divisions and the 27th launched a coordinated attack to secure the 0-3 line, but by dark the breaks through had been repulsed and mopping-up operations behind our lines continued. The big air field on the south end of Saipan was captured during the morning of the 18th. Repair work was started immediately by armored bulldozers, and it was estimated that the air field could be partially operational by the next morning. During the afternoon of the 18th, the 4th Division CP moved inland from the beach about 150 yards.

During the night of the 18th, the 4th Division front line held back several Japanese counter attacks, and the artillery fired heavy concentrations from 0200 on. Right after daybreak, reports came in from air observers that the Japanese were forming large concentrations of troops, supported by tanks, in the vicinity of Hill 500. Naval gun fire support ships were ordered to move off the east coast of the island to help break up the attack. Several large air strikes were ordered on the Japanese concentration and along the roads leading to the Donnay area. By 0830, artillery, air and naval gun fire dispersed the forming of the counter attack, and the Japanese were driven underground.

Only isolated reports came back by air of Japanese movements, and these movements were taken under attack by air, employing rockets, which proved very effective against Jap tanks. By the morning of the 19th, I found the confusion of unloading supplies along the beach area had cleared up considerably.

At the Division CP, the situation was moving fast. The Chief of Staff, the D-2, the D-3, the Division Artillery Officer, the Signal Officer, and the Assistant Division Commander were all present. A new Jap attack was forming in the vicinity of Hill 500, and actions were being taken to stop the attack in its early stage. All of the Division supporting arms were called into play, as it looked as though the time had come for the Japanese to hit us in force. By late afternoon, we knew that the attack was not going to materialize, and the supporting arms had again saved the day.

The Division on our right was moving steadily across the south end of the island and were bottling up the Japanese in the hills and caves in the Nafutan Point area. All of our assault elements (4th Division) had crossed the island and were mopping up the caves along the eastern coast. The time had come for the 4th Division hinged on the 2d Division to start its long turning movement to the north. So far in the operation, the 4th Division had been fighting over terrain that was more or less rolling with gentle slopes, but now they were to go into the mountains and cliffs and start to the north.

"POPULARITY POLL"

Members of a veteran Marine combat unit, quizzed in the Pacific as to what elements of battle caused them the greatest strain, listed these three, in order of their unpopularity: 1. Sniper fire; 2. Night; 3. Riding the assault boats from ship to shore.—SGT. BILL ALLEN, Marine Corps Combat Correspondent.

Point Secured

From a coral point of land that jutted into the sea at Peleliu, murderous Jap fire imperilled our beachhead. Untouched by naval gunfire or rockets the five pillboxes on the point were taken by infantry. ***By Capt. George P. Hunt***

ABOARD a Landing Ship Tank (LST) the usual pre-battle tenseness was mounting each day as we crept nearer to the Island of Peleliu, Japanese stronghold in the Palau Islands. The flat ocean and the heavy equatorial heat muffled the ordinary clatter of the chow line, the lineup for showers, and the sick-call down below, where even the exercise of breathing brought sweat to the brow. The LSTs, formed in regular, even columns, riding the sea squarely upright, like cardboard boxes, belied what seemed their complete immobility by the thin curl of foam at their bows.

Whatever our future was to be, we had planned for it. Whatever the varied assortment of our feelings, we endeavored to cloak them in nonchalance. Naturally, we hoped for another Kwajalein; but it could be a Tarawa, or a Saipan, or worse. We were Company K, Third Battalion, First Marines, First Marine Division.

Outlining the Plan of Attack

The First Regiment, scheduled to land on Beaches White 1 and 2, was to be the left assault unit, assigned the mission of securing the left flank of the divisional operation; the Third Battalion, the left assault unit of the Regiment; and Company K, the left assault unit of the Battalion, on a frontage of 350 yards. 0-1 (objective line one) marked the first perimeter of the beachhead. Especially important was a terrain feature in the left of our sector, a point of land jutting thirty yards into the ocean at the extreme left of Beach White 1. As we deduced from aerial photographs, the Japanese, from this prominent and commanding position, could direct enfilade machinegun and antiboat gunfire on all of Beaches White 1 and 2. It would be essential to seize and hold that point.

> The Plan: Company K was to land on the left of Beach White 1, turn northward approximately 90° and secure 0-1. The Third Platoon, in the left assault position, was to seize the point of land which marked the left flank of 0-1. The Second Platoon, in the right assault position, was to secure 0-1, between the Third Platoon on its left and Company I on its right.

Anticipating greater Japanese resistance on the left, and considering the tactical importance of the Point, the First Platoon, in the reserve position, was to advance along the beach behind the Third Platoon to insure the seizure of the Point.

Contact between platoons was to the left. The flank of the Third Platoon, the pivot on which the turning movement to the northward was to be executed, was to rest on the beach.

Teams Attached to Assault Platoons

Initially, one machinegun section was to be attached to each assault platoon, with the third in the vicinity of company headquarters under the direction of the machinegun platoon leader. After the landing, when the situation was to have become stabilized, the two assault sections were to revert back to the control of the machinegun platoon leader.

Also attached to each assault platoon were one demolition team, one bazooka team, and two flame thrower teams. In reserve, with company headquarters, were one bazooka team, two flame throwers, eight stretcher bearers, as well as a five-man supply squad and the usual complement of runners, intelligence, and communication personnel.

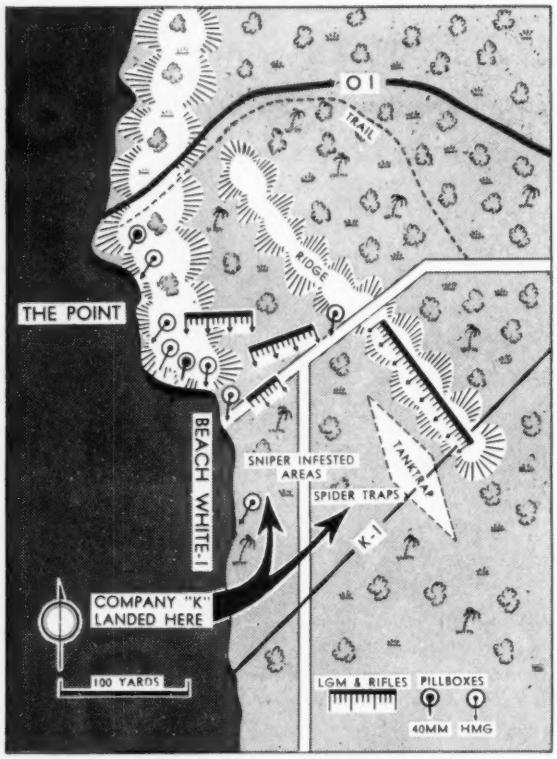
The mortar section was to move into position in the vicinity of company headquarters and be prepared to fire on order.

The company commander was to establish an OP with radio, runners, the first sergeant, the machinegun platoon leader, and the mortar OP group, directly behind the right flank of the Third Platoon. The executive officer was to establish the CP seventy-five yards behind the OP, attend to supply, the evacuation of wounded, and the maintenance of communication with the OP and the Battalion CP.

Under Fire at the Reef

One corpsman was attached to each platoon, one to the OP and one to the CP, both to be sent immediately where casualties were heaviest. September 15. D-Day. 0730: We disembarked from the LST into Landing Vehicle Tracked (LVT) (4's) and LVT (2's), and were soon jockeying into wave positions. A half hour later, under a terrific barrage of naval gunfire which had been laid down steadily since dawn, air bombing, and rockets from the supporting Landing Craft Infantry (LCI), we began the run toward the line of departure.

After crossing the line, our tractors hit the reef approximately 200 yards from the beach. At that point we began to receive mortar and antiboat



Tactical advantage was held at the Point by the Japanese in this beachhead sector.

gunfire. Thirty yards from the beach we were under machinegun fire.

* * *

H-hour. 0830: We landed 100 yards further to the right than was originally planned. Consequently, the right flank of the Second Platoon and the left flank of the left assault platoon of I Company became intermingled. Otherwise the landing, under continuous Japanese small arms, mortar, and antiboat gunfire proceeded as planned.

* * *

0915: The following situation had developed. The naval gunfire, bombing, and rocket-firing had caused no damage to the beach defenses, which were delivering extremely effective fire on our troops. Japanese snipers and light machineguns were also firing effectively from the tops of trees and from the thick underbrush and debris of the coconut grove. Japanese heavy machineguns and a 40-mm. antiboat gun were raking the beach from the Point, which now appeared as jagged coral rising thirty feet above the beach and accessible only to infantry.

Communication between the platoons, the OP and CP, and from the OP to the Battalion CP, was being successfully maintained.

The turning movement to the northward had been executed.

The Third and Second Platoons had suffered severe casualties, each with approximately a total of one squad left. The assault platoon leaders, the assault platoon sergeants, and the sergeant guide of the Third Platoon were all casualties. The Third Platoon had fought to within fifty yards of the Point, clearing the beach of Japanese defenses: One 40-mm. antiboat gun, two heavy machineguns and numerous light machineguns. The Second Platoon had advanced inland seventy-five yards to a tank trap, where its remnants were pinned down by extremely heavy fire from a high coral ridge to their front.

Due to the heavy casualties in the two assault platoons, and what proved to be the too-great width of the assigned company frontage, which was widened by the fact that the entire company was landed on the beach 100 yards too far to the right, a large gap developed between the two platoons. The Battalion CP was informed of the gap.

Because of the devastating fire which the Japanese were delivering from the Point, and the tactical advantage which they held in that position, it was decided that the Point must be taken as quickly as possible. It was evident that the beach would not be secure, but would be dangerously threatened if this were not accomplished immediately. Consequently, the First Platoon was committed in the Third Platoon sector with the mission of seizing the Point, in conjunction with the remnants of the Third Platoon. The filling of the gap was trusted to Battalion Reserve.

* * *

1015: The Point was secured. The First Platoon suffered heavy casualties in the assault. The total personnel on the Point, after reorganization and establishment of a defense, was thirty-four. This included the platoon leader of the First Platoon, a radio operator, the mortar OP Sergeant, and the Company Commander.

* * *

1020: Battalion CP was informed that the Point was secured and that the left flank of Company K was forty yards beyond O-1. Japanese dead in the battle for the point were counted as 110. On the Point proper, the Japanese were entrenched in five pillboxes constructed of reinforced concrete surmounted by five feet of coral. Four pillboxes were firing heavy machineguns, one a 40-mm. antiboat gun. Riflemen, some manning light machineguns, in spider holes and behind the coral rocks protected the pillboxes. After these had been killed or driven off, it was comparatively easy to attack the pillboxes from their blind spots and destroy them with white phosphorous and antitank grenades. In each pillbox there were from six to twelve Japanese. The entire point and its defenses were untouched by naval gunfire or rockets.

1020-1200: The Japanese made scattered, harassing attacks in small groups on our positions on the Point.

Our pressing need for machineguns revealed the fact that all but one squad of the machinegun platoon were casualties and all six guns knocked out. The rear CP was notified by radio, and later in the afternoon a section of guns from L Company reinforced our position. A captured Japanese heavy machinegun was set up on our lines and for thirty-six hours it functioned very effectively until all the available ammunition was expended.

That afternoon the Battalion 81-mm. mortar OP group joined our position, but, being unable to establish contact with their guns, took positions on the line. Communication between our 60-mm. mortars and the OP was also out.

As the afternoon progressed, Japanese sniper and mortar fire increased and we suffered five more casualties. Communication with the company and the Battalion CP's became more and more sporadic as the batteries in the radios wore down. Wire communication was attempted but failed.

Dusk: By dusk it was evident that Company K was separated into three parts. The remnants of the First and Third Platoons and the OP group were in an isolated position on the Point The remnants of the Second Platoon were still pinned down in the tank trap. The CP group and the 60-mm. mortars were situated 300 yards down the beach from the Point and seventy-five yards inland.

The gap between the units on the point and the Second Platoon had not been filled. An estimated 150 Japanese had moved in.

Early that evening, under cover of General Sherman tanks, the Second Platoon was able to evacuate their dead and wounded and withdraw to a more tactically advantageous position for the night.

On the Point, the units were isolated and surrounded by Japanese. The defensive line was changed to an all-around perimeter, with the right flank bent back to the beach.

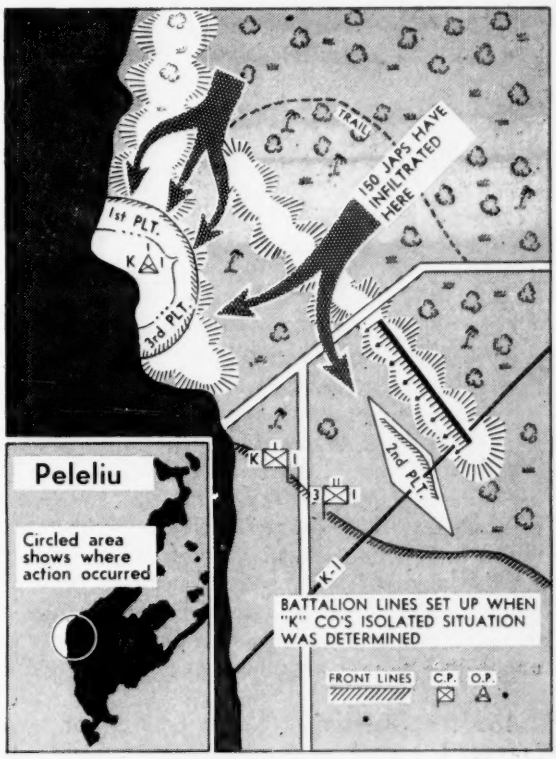
An amphibious tractor, following the route along the beach, supplied the units on the Point with barbed wire, two light machineguns and hand grenades. Every foxhole had a case of grenades.

* * *

1800-2200: There was quiet on the Point except for occasional and varied noises made by reconnoitering Japanese seeking to draw our fire, thus causing us to reveal our positions.

* * *

2400 (approx.): The Japanese attacked the center of our line with an estimated 100 men. They initiated the attack with a heavy barrage



Right flank bent back to the beach, the defensive line was a complete perimeter.

from small mortars, then, as judged by the proximity of their voices, they advanced within hand grenade distance. Their attack was repulsed by our BAR, machinegun, and hand grenade fire. Sixty-mm. mortar illuminating shells, fired on order by the executive officer at the sound of the firing, helped the BAR men and machinegunners to direct their fire.

* * *

September 16. 0130: The attack subsided to occasional harassing mortar fire, and by 0300 again there was quiet. Considering that the Japanese did not assault with the bayonet, it was believed that this attack was a reconnaissance in force.

* * *

0530: As dawn broke, the Japanese renewed their attack in the same sector with vigor. They had moved into a defiladed area, approximately seventy-five yards long and just within hand grenade range of our lines. They fired knee mortars and what appeared to be the equivalent of our 81-mm. mortar. As they were massed closely together in the defilade, our hand grenades fell among them with great effect, while our automatic weapons pinned them down.

However, it was not until 0730 that we were able to silence their last mortar. Sniper fire, which rose to high intensity during the engagement, subsided to harassing fire and continued through-

out the day. Patrols counted enemy dead as 100. Our casualties, approximately four dead and twelve wounded, were evacuated on the first tractor, which arrived at 0830.

* * *

0830-1530: Except for sniper fire and occasional long range mortar fire, there was no Japanese activity. Small patrols sent out from our lines operated on a radius of 100 yards. Reinforcements, rations, water, ammunition and four heavy machineguns arrived by tractor during the day. The reinforcement consisted of shore party personnel, the machinegun platoon leader, the remnants of the Second Platoon, amounting to a squad, and any spare men that could be found idle on the beach.

During the entire day reserve units were fighting to close the gap on our right. By 1530 Company B established contact with our right flank, which had swung inland away from the beach. At approximately the same time, our 60-mm. mortar section and an artillery FO group joined our positions, and the 81-mm. mortar OP group established wire communication to their guns.

* * *

1600: To determine the practicability of moving our left flank forward to a ground-rise 100 yards to our front, two squad patrols were sent out to reconnoiter that area. They encountered an estimated forty Japanese, evidently an advance reconnaissance party for a larger unit, moving into position on the rise. A short, fierce, grenade and Tommygun fight ensued. Our patrols returned with one dead and four wounded. The Japanese withdrew under the impetus of our patrol action and a 60-mm. mortar barrage which was laid down as soon as our patrols had cleared the area. Because of this Japanese activity and the approach of night, it was considered inadvisable to move the lines forward on the left. However, on the right, Company B, temporarily attached to Company K, moved its line forward approximately 100 yards, thus straightening and stabilizing the entire line on 0-1.

By nightfall, our positions, firmly tied in with Company B on the right, had been strengthened by twice the personnel and fire power of the preceding night. We waited in full expectation of a Japanese counter attack in force. It was obvious that their intention was to retake the Point and set up guns to rake the beach, which, as we could clearly see, was dark and swarming with QM and Shore Party personnel; reserve units; tractors and DUKWS, loading and unloading; crowded and ever-busy evacuation stations.

* * *

2200: The attack commenced abruptly with a direct frontal assault on the center of our lines, preceded by heavy mortar and grenade fire. The Japanese charged futilely into the fire of our automatic weapons and hand grenades. Immediately we laid down artillery fire, searching to within 250 yards of our own lines, 81-mm. mortar fire to within 150 yards, and 60-mm. mortars to within thirty yards. Hand grenades covered the remaining distance. Then our entire line opened fire, and the howls of pain which rose in front of our positions, dimly heard through the roar of our weapons, told us that we were hitting the mark. But, in spite of our superior fire power, an estimated thirty Japanese penetrated to our left flank and engaged in close-in fighting. They attempted to encircle our left flank by attacking in the water and along the beach at the base of the overhanging coral rocks. Those advancing through the water were successfully machinegunned, but those sneaking in and out of the rocky crevasses presented a greater problem. These were finally eliminated with tommyguns and thermite grenades, which burned them out of the niches indenting the coral.

* * *

September 17. 0200: The attack subsided as quickly as it had begun, and very suddenly the front was silent, inactive, except for the occasional explosions of our harassing mortars.

Daylight revealed the devastation of our fire. Three hundred fifty more Japanese dead sprawled before our lines. Their rear units, horribly mutilated by our artillery and mortars, had been lugging a 40-mm. gun, for it lay in their midst, scarred by shrapnel, an abandoned symbol of their efforts to recapture the Point.

* * *

0800: Company I moved into our positions in preparation for the day's advance.

Company K went into reserve, mustering seventy-eight men.

With All Modern Conveniences

A Marine infantry command on Peleliu moved into a building where all modern conveniences of civilization had been enjoyed by Nipponese radiomen. The modern, two storied granite structure was attractively furnished with beds, eight-inch thick mattresses, a large refrigerator, running water, a tennis court, and ceiling fans.—T/Sgt. Donald A. Hallman, Sr., Marine Corps Combat Correspondent.

A Uniform Procedure That Will Facilitate Ammunition Control

Ammunition for assault troops must always be available. Use of reports assures supplies for an amphibious operation.

By Maj. Walter C. Wells

D-DAY is the day of decision in an amphibious operation. In the first twenty-four hours the entire beachhead is in a state of flux. After the assault troops come the important supplies necessary to maintain and hold the beach; ammunition, fuel, water, and rations. Unler the best of landing conditions with a well trained shore party a certain amount of confusion is inevitable. If it is necessary to make a reef transfer, or if the beaches are under constant enemy fire, the situation becomes worse. It is imperative that the supply set-up be well organized. A systematic flow of supplies can get under way in short order if the problems have been considered in advance.

Ammunition is the most important single item of supply to follow the assault troops. Troops can get by in an emergency on the water carried in their canteens for twenty-four to thirty-six hours. The same is true of rations carried on their persons. Consumption of such items can be controlled by the individual. The expenditure of ammunition however depends on the action of the enemy. Thus it is vital that ammunition for assault troops follow them immediately and be available on the beaches to meet any contingency.

Reports Made Before Embarkation

Ammunition supply becomes increasingly difficult as the operation progresses inland. Dumps must be established and moved forward with the troops. Ships must be unloaded to take care of emergencies, and shortages filled from available sources. All of this calls for control. Control is established and maintained by careful supervision of ammunition loaded on assault ships, by keeping higher echelons informed as to stocks on hand and possible needs, and by employing trained ammunition personnel properly.

The best insurance toward a smoothly functioning ammunition supply is the attention given to loading ammunition on assault ships. The ordnance officer must have accurate records of ammunition and weapons carried by his organization. This must be known for the establishment of control.

The first reports are made in the staging area before embarkation. The regimental ordnance officers will report the amount of ammunition loaded on each ship together with a recap to the division ordnance officer of the total loaded by the RCT. Copies of regimental reports and the division recap are forwarded to the corps ordnance officer.

When making reports on ammunition embarked it is necessary that all ammunition be shown on the "Embarkation Report." Each ordnance officer should have a correct list of all units which are attached to his organization for embarkation. In order to avoid confusion, ammunition for these units must be shown on the ordnance officer's report as all ammunition embarked is under his control and will be landed on the same beaches where it will be available to any units requiring it.

Indiscriminate Issue Dangerous

Before leaving the staging area, a report of weapons of all units should be furnished the ordnance officer of the next higher echelon. This information is vital for purposes of computing units of fire. The ordnance officer will also need to know the number of weapons embarked to complete his daily weapons report. The same principle applies to the reporting of weapons of the attached units as described for ammunition.

Ammunition reports are necessary for two reasons. First, the next higher echelon must know the status of the ammunition under its control and where it is. Through these daily reports each organization can be assured of maintaining ample supply levels. If stocks are running low replenishment can be made in ample time from division dumps, corps ammunition supply points, or from ammunition ships. Secondly, by knowing the location of all ammunition, stocks can be made available to units having the greatest need. In determining priority of ammunition this information is most valuable. Units will often call for a certain type of ammunition immediately, stating that their stock is almost gone. By checking ammunition reports it can be found immediatelv whether the need is valid. In many cases it will be found that units have ample stocks on hand. Such common errors are usually prompted by failure to check records for available stocks or by a fear that some type of ammunition may not be available several days hence. The dangers of such indiscriminate issue can readily be imagined.

The form used for ammunition reporting must be simple. This is not only desirable, but necessary.

The form illustrated below has proved its value and meets the requirements of a field report.

AMMUNITION REPORT

Item	On Hand Last Report	Rec'd	Exp'd	Adjustment Gain	Adjustment Loss	Balance on Hand
Cart. ball, 30 cal.	10,000	10,000	3,000			18,000

The column headings of this form are self-explanatory with the exception of the "Adjustment Column." In this column all miscalculations are adjusted. In an active combat zone, the chances of error are great, and must be anticipated.

For example, the actual inventory shown as "Balance on Hand" may not agree with the computation of the other columns. The report as illustrated above is obviously out of balance, due to an error. The physical inventory shows 18,000 rounds, while the book figures indicate 17,000. To adjust such an error, it will be necessary to show a "gain" of 1,000 rounds, with a brief explanatory notation. This "Adjustment Column" will be used for such purposes as showing ammunition transferred to another unit, ammunition left in rear areas, and so on. Daily ammunition reports originate in battalions, and are submitted to the regimental ordnance officer for consolidation and forwarding to the division ordnance officer, who consolidates the reports for the corps ordnance officer.

The report is simple to prepare, but requires a thorough training of all personnel in the lower units who are concerned with such reports. It is recommended that each battalion appoint an officer who will be responsible for the ammunition reports. In most cases, the Bn-4 is too busy with other duties to be able to handle ammunition reports himself. He must have help. It is the duty of the division ordnance officer to see that personnel is trained in the control and reporting of ammunition. Don't assume that, because the report is simple, everyone is going to be able to complete it properly. You will never know just how efficiently your ammunition report can be fouled-up until you are in the middle of an operation.

Advance Increases Stocks

Some confusion will arise from the question of what constitutes "Expenditures." Expenditures constitute all items of ammunition issued by battalions to troops. If ammunition is issued directly to troops from a regimental dump, it becomes an expenditure at that time. Artillery units will determine their expenditures from their gun books. In the case of ammunition transferred from one battalion by another, it is recommended that the "Loss Column" be used, with a notation that the ammunition has been transferred. Show only combat expenditures in the "Expenditure Column."

The most common errors are minor in nature, but cause much trouble when the regiments, division, and corps begin to use the report in a consolidation. The common errors are:

(1). Discrepancy between the "New Balance on Hand" for one day and the "Old Balance on Hand" for the next.
(2). Failure to show expenditures correctly. The figures calculated from left to right must agree.
(3). Failure to make full use of the "Gain and Loss" columns. These columns are for the purpose of making adjustments of any kind.
(4). Neatness is often lacking. Of course, a typewriter is not going to be available, but a sharp pencil will do just as well.
(5). Arithmetical errors which arise from carelessness.

The first report after landing is made as soon as it is possible to get a count of ammunition on hand in the dumps. A start is made when beach ammunition officers (from Marine ammunition companies) send a report of ammunition available to the division ordnance officer. Reports for the first few days will show low levels, but stocks will increase as small dumps left behind by advancing troops are located.

Requests Must Go Through Channels

The practice in some units of leaving small ammunition dumps behind as they moved forward can seriously impede ammunition supply. When this is done, the next move is to requisition more ammunition from the next higher echelon. Every effort must be made to move ammunition forward with the troops. There will be times when this is impossible, but it does not warrant abandoning it. If the dump can't be moved with the troops, it should be moved forward when the situation permits, but it must be included in the ammunition report to the next higher echelon.

When making requisitions for ammunition, it should be requested by rounds, not by units of fire. Also, the critical nomenclature must be correct. Divisions and corps may have to make use of the ammunition code in the SNL to insure accuracy in nomenclature. All ammunition aboard supply ships is listed in code only, and constitutes the only time that the code will come into general use.

The practice of requests for ammunition being made without consulting the next higher echelon cannot be tolerated. It is the responsibility of the ordnance officer of the next higher echelon to provide ammunition for subordinate units. Experience has proved that when the requests get out of channels confusion is the result. The SOP must be followed to insure the smooth and efficient supply of ammunition.

Close contact between the ordnance officers of

each echelon is necessary. In this way, each is acquainted with the work being done by the other echelons and any problems arising from procedures or reports can be corrected quickly. Ordnance officers should call or see the ordnance officer of the next higher echelon at an agreed time daily.

An ammunition company should be used with each division in a landing. This company should be used only for the handling of ammunition on the beaches. In the past, some ammunition companies have been used for unloading ships and have not been brought ashore for ammunition handling until several days after D-day. The resulting confusion in ammunition supply on the beaches of these units proves the fallacy of such a policy. Ammunition is the most critical single item in a landing, and it requires constant attention.

Ammunition, when considered from the standpoint of weight and cube, is a tremendous supply problem. When it is realized that approximately sixty types and kinds of ammunition must be brought to the beach on D-day; that one unit of fire for a Marine division averages 500 tons; and that each box or crate must be handled an average of five times from the beach to the point of firing the magnitude is evident. Trained personnel must be used if results consistent with security of supply are to be obtained.

A Marine ammunition company consists of 251 men, six commissioned officers and one warrant. This company is broken down into three platoons of seventy men each, in addition to the headquarters. The company should be controlled by the division ordnance officer, and divided in any way he desires, since his beaches will offer different problems. A general plan would call for one platoon with each RCT for the landing, the ammunition platoon leader being responsible to the regimental ordnance officer. When an ammunition company is used under normal operating conditions, the regimental and division ordnance officers can be free to stay in contact with their units while the ammunition company assumes responsibility for the ammunition which is landed. The platoon leaders will have a true picture of the amount and location of all ammunition, so that no time is lost in searching for needed types. The company commander will keep the division ordnance officer informed of the status of the ammunition landed on each of the beaches. Other officers of the company are used to aid the platoon leaders on congested beaches, to move ammunition to units making requests, to locate sites for dumps and in any other employment desired by the ordnance officer.

As soon as possible after the assault phase, the company will come under division control. The division ordnance officer will then use the company for setting up division dumps, helping assault regiments, and keeping the necessary records.

When corps takes over operation control, the ammunition company will revert to their control normally. If corps is to operate ammunition supply points, the ammunition companies will be used to operate them. If the company is taken from the division, one platoon should remain with the division for the remainder of the operation. This is recommended for the following reasons:

(1). It provides the division with men who are acquainted with the situation from the first phase of the operation.

(2). It provides the division with men capable of supervising the work in the division dumps.

(3). It provides the division with men familiar with the need for and operation of the reporting system used in a dump.

(4). It makes trained ammunition men available to the division. This is especially important now that the ammunition men formerly attached to the division ordnance company have been dropped in the new "Tables of Organization."

The foregoing will not solve the problems of ammunition supply in every case, but will serve as a guide. Experience has proved the need of a uniform procedure for ammunition supply for amphibious operations, and it is only natural that the Marine Corps should lead the way.

Mosquito Network Covers Pacific

Radio is a top flight morale builder for Marines in the far-flung islands of the Pacific, morale officers report, and radio stations have followed close on the heels of assault troops. American Expeditionary radio stations, dubbed the "Mosquito Network," not only originate new programs but play transcriptions of popular stateside broadcasts, with commercials deleted. Latest member of the "Mosquito Network" is WXLI, located on Guam, which has the slogan: "Another station on the road to Tokyo."—Sgt. Bill Allen, Marine Corps Combat Correspondent.

Aviation

Reports and Comments on the Military Uses of Aircraft *By Capt. Jack DeChant*

B-29s Over Japan

THE air war finally got its hooks solidly into Tokyo late in November when Superfortresses raided the "sacred city" for the first attack there since Doolittle's strike in 1942. By operating from newly-won Saipan, the B-29s were able to hit Japan from the East for the first time. Previous westerly Superfort raids on Japan had come sporadically from airfields in China.

As certain evidence that the new Saipan-based B-29 strikes were not of the token variety, pilots of the global 20th Air Force spilled their loads on Tokyo in three raids in six days. The Marianas base for the Superforts is the first ideal one they have had. The enormous quantities of gas, bombs and supplies needed for a single strike can now be shipped direct to the field by AK and tanker where previously the B-29s themselves had to ferry their own meager supplies over the Hump into China. Now they are able to strike frequently and often without supplies hampering their operations in the tedious fashion they once did.

In these early stages of the B-29 operations, "large" raids will not approximate the present one and two thousand plane armadas of the European variety. In spite of the relatively low number of planes, these B-29 raids are now of major importance in the Pacific war. Air Force generals have termed the new Tokyo raids as "the beginning of the end of the war on Japan." In a sense, they are that. It will take a long, long time for air power to paralyze Japanese industry, but at least the heart of Japan is finally within regular range. Except for huge sporadic carrier raids, probably in prospect for Japan proper, the major work in the early phases of strangling enemy industry and morale will be done by the Superfortress, a plane built for just that type of strategic use.

Without question, Boeing's B-29 is the present colossus of the air war. It has merited more Hollywood adjectives in the press to date than any other aircraft with the possible exception of the rocket planes. Yet little else could be expected of this plane, which readily dwarfs its competitors by carrying an eight to ten ton bomb load, and has longer range, higher speed, and greater service altitude than any other bomber now in service. The Superfort is not a modification or stepped-up version of any plane but rather in a class by itself —the first new plane built for a global air war.

The Superfortress

Power Plant: Four Wright Cyclone 18-cylinder, 2,200 horsepower engines with four-bladed Hamilton propellors.

Dimensions: Span, 141′, 3″; length, 99′; height, 27′, 9″; tread width, 31′, 6″; wing area, 1,739 sq. ft.

Weight (Max.): Approximately 120,000 pounds.

Speed (Max.): Over 300 m.p.h.

Ceiling (Max.): Over 25,000 feet.

Bomb Load (Max.): Eight to ten tons or more, depending on mission.

Armament: Ten or twelve .50 cal. guns as follows: 2 or 4 x .50 cals. in upper forward, lower forward, upper rear, lower rear and tail. General Electric station fire control system. Late models have 4 x .50 cals. in the upper forward turret.

Crew: Eleven, including flight engineer.

The Army Air Forces think so highly of these planes that they speak of them in terms of "task forces," likening them to the Navy heavyweights of the line. According to General Marshall, "the power of these new bombers is so great that the Joint Chiefs of Staff felt that it would be uneconomical to confine the Superfortress organization to a single theater. These bombers therefore will remain under the centralized control of the Joint Chiefs of Staff with a single commander, General Arnold acting as their agent in directing the bombing operations throughout the world. The planes will be treated as major task forces, in the same manner as naval task forces are directed against specific objectives. This type of flexible, centralized control recognizes that very long-range bombardment is not a weapon for the air forces alone."

Before considering the notable technological improvements that are a part of the B-29, released data on its over-all nature, presented herewith, will explain why it can readily be called "The Superfortress."

The B-29 is as far ahead of the B-17 and B-24 as those two aircraft are out in front of pre-war

bombers, according to General Arnold. From the statistics, the Superforts have almost double the size, range, and horsepower of the Fortress and Liberator which have been the "heavies" in Europe along with several British types, including the Lancaster. London to Berlin was a long, tough raid for those planes while the 3,100 miles round trip from Saipan to Tokyo would be the equivalent of a non-stop trip from New York to London with a full bomb load for the B-29s.

Two of the outstanding innovations in the B-29s are the pressurized cabins and central fire control.

Double turbo-superchargers are the twin-answers to very high altitude bombing for both the plane and the crew. Each of the four 2,200 h.p., air cooled, radial, 18 cylinder Wright engines requires two superchargers, instead of the customary one. Superchargers on two of the engines maintain pressure within the cabin of the plane so that the crew can operate without oxygen equipment and without the physical discomfort and strain which result from the ues of such gear. If a shell penetrates the pressurized cabin, the crew must, of course, don oxygen masks and plug in their electrically heated flying suits. Should bailing out be necessary in the stratosphere, an oxygen bottle for that purpose is a standard fixture on all the parachute harness. The crews are also instructed on the free-fall technique of jumping, which would take them well below the danger point of 30,000 feet before opening their chutes.

The supercharger operates on the simple principle that it maintains constant, livable air pressure inside the sealed cabin, while the pressure outside decreases the higher the plane ascends. Boeing's commercial Stratoliner was the first to use successfully the pressurized cabin in this country.

Not much can now be said of central fire control except that it permits the bulk of the plane's armament to concentrate terrific fire power against one spot in a matter of seconds.

Tokyo Radio screamed bloody murder after the first series of B-29 raids, sounding off in typical Berlin style about "ruthless, wanton" attacks and barbarous "albino apes" who would be killed if taken prisoners. This, and the fact Tokyo admitted fires were started, were the first evidence of the actual military effectiveness of the new attacks.

It must be remembered in appraising the actual destructive value of the Superforts that a good deal of their work will be "blind" bombing. They will hit at night and regardless of weather and visibility during the day. Whether a very high average of accuracy can be maintained under such conditions has yet to be proven conclusively. Yet the B-29s can and will do damage to Japan in the months to come as a symbol of true global airpower.

Sea-Going Flyers

Air personnel forced to take to rubber life rafts at sea now can join the Sea Squatters. With membership limited to persons forced to bail out at sea and use rubber life boats, the Sea Squatters' Club has enrolled many Navy and Marine flyers who became eligible in the island campaigns of the Pacific. The first woman Sea Squatters were two lady Marines, passengers on a Navy Liberator that ditched in the Gulf of California.

Dressed to Kill

Pilots of the Marine "Death Dealers" fighter squadron added a humiliating touch to their strikes against Jap-held Babelthuap Island, thirty miles north of the Peleliu airfield. The pilots carried out their missions attired in fancy Jap flying helmets lined with rabbit fur, and Jap boots, similar to our own cowboy boots. Some even wore "zoot" Jap flight suits. The captured Japanese gear was purchased by the pilots from Marine infantrymen who had been fighting the Japs in "Dead Man's Gulch" and on "Bloody Nose Ridge," near the Peleliu airstrip.—CAPTAIN EARL J. WILSON, Marine Corps Public Relations Officer.

Corsair Fighters

During their first thirty-seven days of operation from the Palau Islands, single-seated Corsair fighter planes of the Second Marine Air Wing flew 1,174 sorties and dropped 186 tons of bombs on by-passed Japanese islands in the Western Carolines. This is believed to be the first time that Corsair fighters, unsupported by dive bombers, have carried out neutralizing operations against enemy islands. Included in the Corsairs' Western Caroline bag were numerous barges, oil, supply and ammunition dumps, ships, small boats, and aircraft, as well as two radio stations and three piers. Their targets, plotted carefully through aerial reconnaissance, were destined to strip the Japanese of everything of military value.—CAPTAIN EARL J. WILSON, Marine Corps Public Relations Officer.

Inventions A

DO YOU know of a way to detect unseen enemy personnel approaching along a jungle trail?

Can you suggest improved traction devices for wheeled vehicles, superior to chains and other equipment now in use?

Can you improve on present methods of signalling the identification of ground troops to friendly airplanes and vice versa?

Solutions to these and many other problems are urgently needed. Scientists and technicians are working on them, but, to get further help, a clearing-house for military inventions has been set up. This is the National Inventors' Council, under the Department of Commerce, located at Washington 25, D. C.

Following are some of the problems. Partially satisfactory solutions to most of them are already available. However, there is always need for, and interest in, an original and inventive approach to them. The Council welcomes ideas on these and other devices and methods which may have military applications.

VEHICLES:—

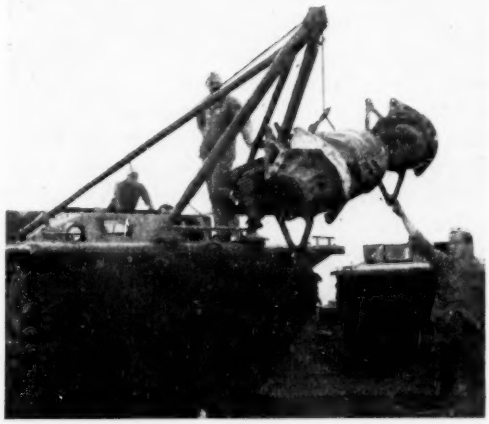
1. Tracks for tractors and other motorized equipment which will operate efficiently in snow and extreme cold.
2. Better air cleaners for use on tank engines and the like; more effective than present cleaners and requiring less maintenance.
3. Methods of quick-action, water-proofing for enabling vehicles to ford water several feet deep without stalling engines.
4. Methods of protecting our vehicles from the effects of enemy land mines.
5. Means for increasing life of standard automotive or stationary engines when operated on 91 octane fuel.

OPTICAL:

1. Reduction of glare from glass surfaces by *durable* coatings suitable for field application.
2. Optical method for determining the difference between an artificial green and a natural green.
3. Short base, wide-angle range finder readily portable and capable of being mounted on a vehicle.
4. Searchlights which may afford ready means for spreading the beam from narrow high intensity to 15° of greatest intensity practicable.
5. Device to maintain or indicate, within 5′, the relation of an aerial camera to the vertical.
6. Means of defeating darkness to permit vision at night without aid of visible reflected light. *Note*: Probably involves an apparatus to translate infra red rays to visible light.

PROTECTIVE:

1. Means of controlling fires in fighting tanks for a sufficient period of time to evacuate personnel. The process should not be injurious to personnel, and should be manually controlled and operated.
2. Clothing giving protection against falling pieces of white phosphorus.
3. Protective ointments to counteract vesicants.
4. Protection against flame throwers.
5. The detector and method of locating non-metallic land mines.
6. Equipment or methods for removing land mines rapidly from mine fields without injury to equipment or personnel.
7. Absorbents for carbon monoxide or catalysts



The LVT-2 retriever, shown above lifting an 1,800-pound transmission, was developed by two Marine Corps officers, First Lieutenant William E. Lunn, and Warrant Officer R. C. Hibbard. First used on D-day on Saipan, it has now been adopted by the Navy as a standard combat vehicle. This sea-going wrecker is credited with saving at least twelve other LVT-2s, valued at approximately $384,000, in the Saipan and Tinian operations.

Are Needed

or other means for oxidation of this gas to render it non-injurious to personnel.

AVIATION:

1. A high precision, low friction bearing that does not involve the use of balls or rollers.
2. The development of a suitable shock mount to permit the installation of a gun camera to a caliber .50 machinegun to permit photographing of objects during the time the gun is being fired.
3. A liquid or paste good for at least 12 hours' service which will prevent the formation of ice on airplane surfaces.
4. Positive parachute opening device, to provide automatic opening at a definite altitude above the ground.
5. A device for the quick release of a cargo parachute from the cargo upon contact of the cargo with the ground.
6. Low cost aerial delivery parachutes. Must withstand 200 m.p.h. airspeeds.
7. A shock absorber that does not require the use of synthetic packing to retain the fluid in the strut.
8. A tow target capable of being towed at high speeds and producing a low drag.
9. Shockless two-speed propeller drive mechanism.

COMMUNICATIONS:

1. Sonic or supersonic means or methods of signalling in the field.
2. Means of long distance communication outside the present scope of radio and not restricted by line-of-sight projection.
3. A voice-transmitting gas mask which would permit the wearer's voice to be heard with clarity.
4. Colored smokes using readily available pigments for obtaining the desired color.

MISCELLANEOUS:

1. A method of removing the tetraethyl lead from leaded gasoline to make it usable in stoves, lanterns, and small engines.
2. Methods of rust-proofing ferrous metals, which are more durable than present metals, such as bonderizing, etc.
3. A simple non-toxic process for darkening aluminum and other metals; to make them non-reflectant to light.
4. Methods of sabotage by friendly inhabitants within occupied areas.
5. Waterproof compound for treatment of duck used in fabrication of canvas drinking water storage tanks.
6. Destruction and removal of obstacles to landing operations. Obstacles may be visible or concealed and may be off or on shore.
7. Location and destruction of concealed enemy emplacements, pillboxes, and similar strong points.
8. Improvements in tank vision devices and control instruments. There is special interest in reducing space requirements and improving performance of gyroscopic compasses.
9. Ingenious and simple decoy devices for purpose of confusing and misleading enemy.
10. Technical data as to strategic enemy targets, such as chemical plants, explosive plants, power plants, etc.
11. Methods of generating stable artificial fogs, and methods of dispersing artificial and natural fogs.
12. Design of life vest which automatically inflates and turns the man on his back when he is thrown overboard by concussion and is unconscious.
13. *Noiseless* hand generator combined with a lightweight flashlight. The generator should be pumped at a rate of forty revolutions per minute, and the light should be continuously brilliant and start on the first pump.
14. An inexpensive metal suitable for Quartermaster tableware; one having requisite strength, freedom from corrosion by food acids or alkalis; durability and attractiveness.
15. Small light-weight gasoline engine, either two or four cycle, capable of reasonable continuous operation utilizing 100 octane aviation gasoline, which may be started and operated at temperatures as low as —60° F. Rating should be between one and five h.p.
16. An independently operated heating unit for sea level operation, capable of continuous operation at —65° F. for a period of eight hours. Units should weigh not more than one pound per 1000 b.t.u. per hour output and must deliver clean non-toxic heated air.
17. Suitable substitute for rubber for insulating wire; should be flexible and durable.
18. Plumb-bob type of generator to operate a light six volt radio. Generator probably operated by a reel winding up and letting out the plumb-bob.
19. Methods of insuring CO_2 inflation of life rafts within thirty seconds time at temperature of —20° to —40°.

"Infantillery" on Peleliu

Operating in an area that was only about two hundred yards square, an entire 155-mm howitzer battalion combined tactics of the Civil War with World War I methods, then served as infantry.

By Lt. Colonel R. A. Evans

ON Peleliu, a 155-mm howitzer battalion was used in a thoroughly unorthodox manner. Combining the Civil War tactics of front line artillery and the World War I method of massing artillery with guns hub to hub, this battalion went headlong into the operation which will go down in Marine Corps annals as one of the most difficult in its history.

Contrary to popular opinion and accepted principles of employment, the battalion was landed and firing on D plus 1 day, when the beachhead was not completely established and only three to four hundred yards deep. To the south, the front lines were only one hundred yards away when the guns rolled into position. Two batteries were in position trail to trail, firing in opposite directions, and the third battery was in march order close by. The entire battalion was in an area approximately two hundred yards square. Compare this with a U. S. Army 155-mm howitzer battalion in Italy whose battery fronts were as much as eight hundred yards. These examples of medium artillery employment in two widely separated theaters.* of war show that the established rules must be thrown overboard to meet existing situations.

Accepted methods of camouflage did not apply, as the bombing and shelling had destroyed practically all of the natural cover. The howitzers were emplaced on top of solid coral rock, using shell holes as trail pits, because the fire of 155's was vitally needed to support the hard-pressed infantry.

Later in the campaign the battalion was ordered to act as infantry, whereupon an artilleryman coined the term "Infantillery" to describe himself and his comrades.

Battalion Takes to New Weapon

Preparation for the operation began two months prior to D-day. Previously this battalion had converted from a 75-mm Pack Howitzer Battalion. Over a period of two months the process of procuring equipment had been completed and training begun. All hands had taken to the new weapon like ducks to water, and by the time the campaign began this battalion was as good as any the Marine Corps had.

During this period some old-timers had gone home and inexperienced men replaced them. Just prior to the final rehearsal, one hundred and five recruits joined the battalion, creating a small problem because the active training phase was over. However, the following events proved that the last minute additions did not impair the efficiency of the unit.

The battalion was not required to participate in landing rehearsals as it was not scheduled to land until a large beachhead was established. That pleased all hands because rehearsals are a lot of work, and mainly for the advantage of the command echelon anyway.

Loading of Cargo and Troops

For the trip to the combat area the battalion was distributed on five ships, so all the eggs would not be in one basket and to fit the cargo and troop spaces. Most of the ammunition was loaded on still another ship, each battery carrying a unit of fire with its guns. Organic transportation was reduced to a bare minimum that would get the equipment ashore. One prime mover (TD-18 tractor) and one bulldozer (TD-18 with blade) and one 6-ton Athey trailer were allowed per battery, including Headquarters and Service Battery. Additional transportation for the battalion was three 2½-ton trucks, two radio jeeps, three wire-laying jeeps, three 1-ton cargo trailers and four 300-gallon water trailers.

Each firing battery lashed gun boxes, tarps, camouflage nets, filled water cans, oil cans and gasoline cans, spare parts boxes, machineguns and ammunition, communication equipment, and battery sick bay boxes to the gun trails, covering the gear with a securely lashed tarp. In this way all vital equipment needed to go into position and fire was carried with the guns. Likewise the tractors were loaded with water, oil, and diesel fuel so they would be self-sufficient for several days. The tractors were waterproofed for a depth of six feet. The trucks were not waterproofed except for spray. One tractor was equipped with an A-frame to carry the jeeps ashore and to lift the motors of the trucks above the water when they were brought ashore. This A-frame proved of inestimable value in unloading ammunition. It served its purpose until most of the ammunition was ashore when an overload buckled it in the middle.

*Acknowledgment is given to Captain James A. Pounds, III, for his help in preparing and editing this article.

Athey trailers were loaded first with a layer of lumber, a large tarpaulin, one hundred projectiles, powder and fuzes for the shells, and several hundred sandbags. They were loaded to the top of the stake body and over the whole load was a securely lashed tarp to keep out rain and hold the load.

The trucks were loaded with communication equipment and galley equipment for all batteries, covered by a tarp. Six pyramidal tents were among the gear, one for each battery CP, battalion CP, fire direction center, and battalion sick bay. Motor transport spare parts and battalion dental and sick bay equipment were on the cargo trailers, and the water trailers were filled.

Peleliu Gets Heaviest Bombardment

Bulk cargo consisted of fourteen hundred complete rounds, water cans, fuel drums, rations, and the remaining organizational equipment. We attempted to load each firing battery completely on its ship, but this proved impossible and the overflow went aboard with the Headquarters and Service Battery. Landing Craft Tank (LCTs) were assigned to each of the three firing battery ships, as they were the smallest craft that could carry the heavy equipment.

Loading was completed one week before getting under way for the combat zone. The convoy shoved off eight days prior to D-day. The trip was uneventful, broken only by the evolutions of the ships on special maneuvers.

Early morning on D-day the vague shapes of several islands were barely discernible, but at dawn guns of the bombardment fleet marked Peleliu. At this time the battle fleet and carrier planes began the final awe-inspiring preparation before the landing, giving this island of ten square miles the heaviest bombardment per yard of any island in this war. In an hour the entire island seemed afire.* It appeared impossible that any human being could remain alive through such terrific destruction. To the dismay of the entire command there were plenty of the enemy very much alive and waiting for the assault waves. The Japs could really take it.

During the preparation, ships were unloading and the assault waves were forming for the run to the beach. At 0830 the bombardment lifted inland to the high ground, and the landing began. The chaos and destruction among the leading waves was fearful but that is another story.

The battalion reconnaissance party was boated at 1000, and on the line of departure awaiting the call to land. From the boat it could be seen that the advance was not progressing as fast as planned, and the reconnaissance party probably would not land on schedule. The party remained in the broiling sun for seven and one-half hours watching shells land on the beaches only to return to the ship for the night.

During the day two LCT's were loaded with guns and equipment of B and C Batteries, ready to land. These two batteries spent the night floating around just off the beach.

The transports and cargo ships got under way and stood out to sea for the night, returning at

*Viewing the destruction later, a Marine aviation unit nicknamed Peleliu "Nothing Atoll."

A busy crew contributes to the enormous total of 8,173 rounds thrown at the enemy on Peleliu by Batteries A, B, and C of a Marine 155-mm howitzer outfit.

dawn to continue unloading and sending troops ashore. The reconnaissance party again boated and received instructions to land at 0900, which was accomplished after much dickering with Landing Vehicle Tanks (LVTs) at the line of departure. During the first two days the beach was covered with continuous enemy artillery and mortar fire, so we started in with no little trepidation.

Upon reaching the beach without mishap, we began a search for the regimental CP of the Eleventh Marines, to which this battalion was attached, for information and instructions. A thirty minute search found the CP in a small Jap dugout just off the beach. Lieutenant Colonel Lyman, executive officer, and Lieutenant Colonel Chapman, the R-3, informed us we had received erroneous instructions to land and should not be ashore until afternoon. It was too late for a change, so we studied the Eleventh Marines' situation map and learned with dismay that the 155-mm howitzer area had not yet been captured. Another position area was the only solution. It was close quarters, but an area was found where at least one battery could be placed in firing position and the other two in concealed bivouac. At 1200 the reef was almost dry. Permission to bring the battalion ashore was requested and granted after some discussion. The LCT's were ordered in to the reef. The third battery had been boated early in the morning, so all three firing batteries were ready to come ashore. At this time mortar shells were still landing on the beach, causing some concern because one shell could easily knock out a gun. (Owing to this shelling and the resulting confusion it was D plus 4 days before all service and supply elements of the battalion were ashore.)

Forward observers set up communications in this abandoned, scarred Jap position.

C Battery got off to a bad start by getting an ammunition trailer stuck on the reef, but by ingenuity and hard work it was free in about thirty minutes and the battery continued to unload. By 1800 the firing batteries and enough FDC personnel to operate were ashore. B Battery was in position and registered before dark. A Battery was put in position about fifty yards in rear of B Battery with line of fire in the opposite direction. (See Overlay 1). C Battery was in concealed bivouac nearby. The position was about two hundred yards square and on solid coral, pockmarked with shell and bomb craters. These craters served as trail pits and foxholes for the troops. Without them the position would have had no cover and would have been untenable. Throughout the occupation small arms fire crackled ominously overhead.

Batteries Fire in Opposite Directions

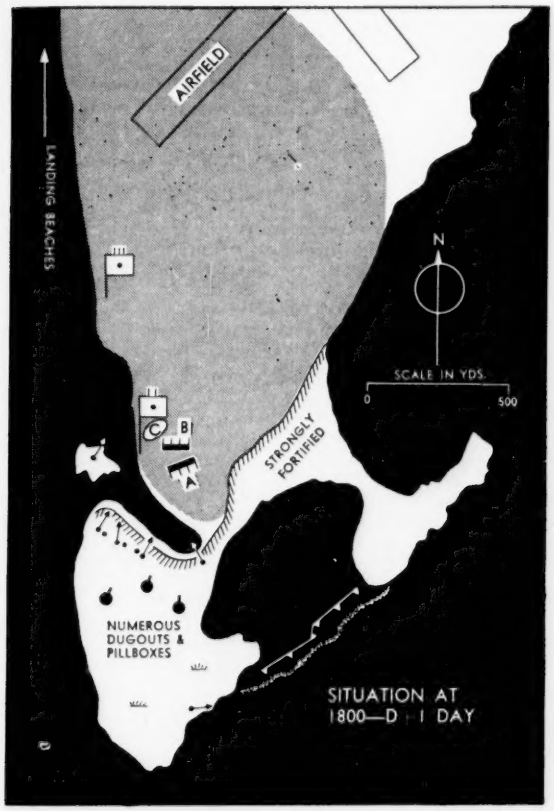
B Battery opened fire to the north and west in general support and continued firing from this position day and night for fourteen days. A Battery fired in the opposite direction in direct support of the Seventh Marines, using direct fire at ranges from two to six hundred yards. For three days, forward observers and observers at the guns placed several hundred rounds from A Battery guns on pillboxes, machinegun positions, and troop concentrations.

The guns were in a precarious position as the enemy could see all the pieces from close range and had commanding ground from which machineguns kept firing at our infantry. Why the Japs never concentrated fire on our position will always be an unexplained mystery.

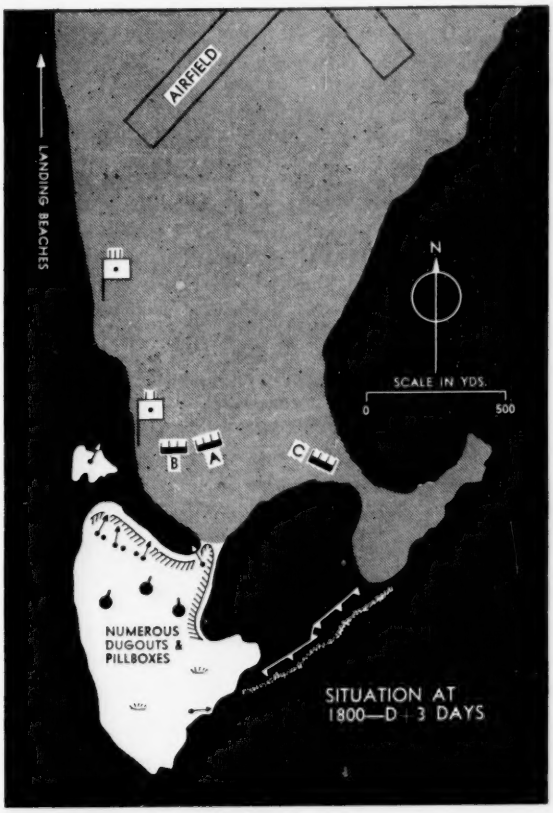
Immediately upon coming ashore the Battalion FDC was set up and ready for missions as soon as B Battery was in position. Originally the FDC was in a very small Jap shelter, where it remained for two days and nights. On the third day the FDC tent was erected, prepared for blackout and used during the remainder of the operation. Flashlights and battery lamps were used.

Arrangement of the FDC

The HCO and VCO charts were established on two plane tables. Bn-3 and the computers with charts and records used a three by six-foot table. Telephones marked each post. After the third day the HCO and VCO charts were combined and one man did both jobs, alternating with the other. Regularly accepted procedure was followed in the FDC and recently developed technique proved sound. Two computer teams alternated, as did Bn-3 and the assistant Bn-3. By the end of the operation four complete FDC teams were trained. A chronological record of targets and firing data was kept in journal form, no concentrations being plotted on the firing chart.



On D plus 1 day, the two batteries shown above as A and B fired in opposite directions.



On D plus 3 days, A Battery was moved to a new position to support main effort to north.

The maps provided were accurate enough with registration for horizontal control but inaccurate in vertical control. These maps were used as the battalion firing chart nevertheless. As there was only regimental control of fire, battery fire charts were dispensed with, except for situation maps. The metro section took messages every four hours, which were accurate and were used to correct firing data. No survey was attempted as location by inspection was within the error of the map and considered accurate enough.

Bn-2 kept an accurate enemy situation map, getting reports from aerial observers and forward observers, as well as from men assigned to contact adjacent units for information.

Both wire and radio communications were quickly and efficiently installed. The SCR-300 radio was used by forward observers and for alternate communication channels between batteries and battalion. This radio proved to be a good, reliable set. TCS radio jeeps were used for communication with air observers, with a telephone from jeep to FDC. Direct lines were laid from the FDC to regimental and adjacent battalion FDC's, in addition to normal trunk lines between switchboards.

Ammunition came ashore in LVT's and DUKW's and had to be husbanded carefully the first few days. The supply soon became stabilized and thereafter no missions were refused. Most of the 155-mm ammunition was palletized, eighteen projectiles to a pallet and approximately thirty-six charges to a pallet. This system proved very useful in handling ammunition and storing it above the ground.

C Battery Moves into Position

On D plus 2 days, enough ground was secured to enable C Battery to go into position. Reconnaissance was made about noon, and the battery moved into position, registered, and was firing missions by nightfall. It fired continually for thirteen days and nights. C Battery was about five hundred yards from the other batteries.

The following day, A Battery was able to move to a new position where it, too, could support the main effort to the north. Reconnaissance closely followed the infantry, but the party was pretty badly shot up by Jap machinegun fire and this position was discarded. A Battery was placed on the right flank of B Battery, making in effect, one battery of eight howitzers with a front of about two hundred yards. The battalion remained in this position throughout the attack phase of the operation.

Each day thereafter the battalion fired a thirty minute morning preparation, then on targets of opportunity throughout the day. Daily air spot assignments were given the battalion's observers, who remained aloft during daylight hours. The air spot was exceptionally successful. Little anti-aircraft fire was encountered, allowing the planes to go low and find otherwise invisible targets. Observers gave a blow by blow description of the action, which greatly added to the interest and increased the morale of the troops. Throughout each night harassing fires were delivered as per schedule.

Favorable reports came from all sides on the effectiveness of the 155-mm howitzer fire. Destruction of many pillboxes, dugouts, caves, storage dumps, buildings, machinegun nests, ammunition dumps, artillery pieces, naval guns, mortars, bridges, trucks, and personnel were credited to the battalion. Time fire was used very effectively against personnel both on land and in barges. Adjustment was made with point detonating fuze, and air bursts were obtained by using the PD range and setting time fuzes for this range.

380 Tons of HE and Steel

A total of 8,173 rounds were fired by the battalion in this operation. This represented some 380 tons of high explosives and steel thrown at the enemy. Only one round fell short, and that a smoke shell, which injured no personnel and did no damage. All the ammunition fired was point detonating high explosive shells with the exception of 172 smoke shells and fifty-three air bursts. A Battery fired 2,693 rounds, B Battery 3,135 rounds, and C Battery 2,346 rounds. B Battery was the normal adjusting Battery.

Then, on the seventeenth day came the bomb shell. The message came, "Take off your artillery dungarees and don the infantry uniform. You are to go to the front lines, acting as infantry to hold a defensive sector." Thus was born the term "Infantillery." The battalion furnished one company for the western sector and four companies for the northern sector. It was purely a holding mission, but a dangerous sector. The artillery was not to be used as attack infantry. The message came at 0900 and the lines were to be occupied at 1300. The relief was accomplished on time, although there was quite a scamper to get required infantry weapons. In all, the battalion had 485 men on the line at one time.

Since only a few machineguns could be advantageously emplaced on the rocky ridge, grenades, carbines, and Tommyguns formed the defensive backbone. The first night as "Infantillery," the battalion CP was attacked three times by small groups of infiltrating Japs. In the resulting melee we lost one killed, two seriously wounded, and twelve others wounded. However, the Nips came off second best in the scrap. The following seven days and nights were almost repetitious, causing a total casualty list of seven men killed and seventy-seven wounded. Most of the wounded required evacuation. During the day, the Japs had well concealed snipers whose fire was deadly accurate. At night they lobbed grenades into our positions. This episode made quite an impression on all members of the battalion, and convinced them that such employment was uneconomical for artillery personnel.

The End of Infantry Duty

At the end of eight days the battalion was relieved but was required to maintain two companies of one hundred men each on the line indefinitely. Fortunately this period only lasted seven more days. Everyone was relieved when this tour of duty ended.

During the "Infantillery" stage, two howitzers were emplaced where they could bear with direct fire on caves and commanding ground that were causing a stalemate in the operation. These pieces fired at numerous caves in sheer coral cliffs, breaking down the hillsides and closing the caves with rubble. Direct hits were scored on the mouths of caves, causing great consternation to the hidden Japs. Artillery at this time was being used much like demolitions. Pure destruction was the mission, with no methods but visual to check results. These two pieces fired in this manner for twelve days, and one was used for effective night harassing fires which pleased the infantry. This was, to the author's knowledge, the first time 155-mm howitzers had been used in such a manner.

Several high ranking artillery officers conducted fire of the advance position guns, and one claimed to have sniped a lone Jap, getting direct hits. This fire was at times landing within one hundred yards of our own lines.

Charge Two Found Most Suitable

For this district fire it was found that with charge one at ranges that varied from 1,000 to 1,200 yards the projectile did not follow the trajectory but went through the air with the long axis of the shell horizontal. Ricochets were the result, and the fuze apparently did not arm, as many were duds. Several theories to explain the phenomenon were advanced but none proved. The charge was changed to six and then gradually reduced to charge two, which was used thereafter.

During the whole operation there were few material casualties, all of a minor nature easily repaired in the field. Broken firing pins and broken obdurator spindles made up the majority. One piece returned to battery jerkily after sev-

eral hundred rounds, but was repaired by the battalion ordnance section in a few hours.

Camouflage and camouflage discipline were forgotten except for C Battery, which had good position with some natural cover, but no difficulties were experienced. The terrific pounding by naval gunfire and bombing made camouflage almost impossible, as it practically denuded the island.

Except for several 77-mm rounds that went overhead, no counterbattery was experienced by this battalion. Some mines and a few booby traps were encountered, and one artillery shell killed two and wounded two early one morning.

Needless to say the battalion was happy to be relieved by an Army 155-mm howitzer battalion and go aboard ship. Remembering six weeks of toil and pure hardship, the officers and men of the battalion heaved a sigh of relief as they took their last look at "Nothing Atoll" and set course for base camp.

WE QUOTE

Saburu Kurusu, Japanese "peace envoy" to the United States at the time Pearl Harbor was bombed, speaking on a recent Tokyo broadcast, declared:

"Japan has 100,000,000 Patrick Henrys who are fighting for their country's freedom with heart and soul."

* * *

Joseph Goebbels, always the optimist, told the Berlin correspondent of the Japanese newspaper Mainichi:

"I am convinced that the war situation will take a turn in our favor in the very near future. It very often happens in a war that those who thought that victory was near suddenly found out that things are developing in another direction . . . . Our defense measures have been finished to the last detail and we will not again have to go through such heavy attacks as last autumn and winter."

* * *

Goro Nakano, former New York correspondent of the Japanese newspaper Asahi, gave his people the word about Americans in a recent broadcast over Radio Tokyo:

"According to recent enemy reports, in the war bond selling drives, Hollywood and Broadway actresses give one kiss for each bond . . . Thus, by barbaric methods, they are bolstering the dime-store patriotism of ignorant Yankee masses."

Nakano also expressed horror at American wrestling, telling how huge, horrible monsters with "outrageous names such as Man Eater, Man Mountain, Champion of Hades" were imported and pitted against athletic American youths. At the start of the match, the foreign monster pummels and knocks the American around the ring, but then "the good looking youth completely defeats the monster, who looks like a ghost, thus carrying out a cruel revenge."

* * *

General H. H. Arnold, in a speech, described a recent experience on a trip, when he stayed overnight with a small-town preacher.

"The preacher and I sat on the porch of the hotel," said General Arnold, "and we talked about the war for half an hour. Then the preacher looked at me in a rather searching manner and said, 'Are you in the Army?' "

" 'Why, of course he is,' said the preacher's wife. 'Can't you see he's wearing a uniform?' "

"Then the preacher said to me, 'What *branch* of the service are you in?' "

"So I said to myself, 'What *is* fame?' "

* * *

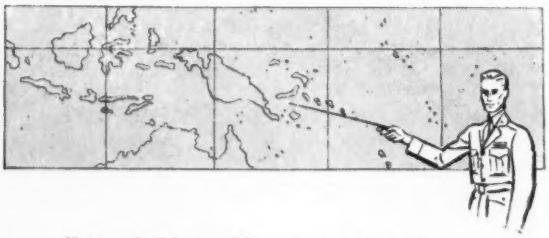
Robert P. Patterson, Undersecretary of War, writing in Colliers, said:

"If we could bring our armies face to face with all the Japanese armies on some Asiatic battlefield, we would, without a doubt, win decisively and bring the Pacific conflict to a speedy close. There is not the slightest question as to our superiority both in numbers and in efficiency. The same thing is true of our Air Forces and our Navy. Such a test of strength, however, will be avoided by the Japanese as long as possible. We will have to defeat them the hard way."

Down to Earth About Colonies

The rising power of the United States makes us increasingly responsible for the kind of order that is kept in colonial areas. A new concept about colonies is arising. *By Joseph M. Jones*

A Gazette Background Article



Editor's Note: Not the least of the causes which led Japan into its policy of aggression was the inadequacy of Colonial administration in certain areas of the South Pacific and Southeast Asia. Anyone engaged in the battle to drive Japan out of her great empire is naturally concerned with what solutions may be found for these Colonial areas after the war. In this article, a former member of the State Department outlines the latest trends of thought in Colonial administration.

FOR understandable reasons growing out of our history, most Americans have a very simple concept about colonies: It is wrong for one people to rule another. And, having once fought a bloody revolutionary war to establish our freedom from British rule, we have an even stronger feeling about Britain's empire: There is something *especially* wrong about it. Many other countries have colonies—the Dutch, the French, the Belgians, Portuguese, Spanish—and their rule is, to say the least, no less enlightened or beneficial than the British, but it never occurs to Americans to get their feelings aroused about these. We ourselves possess colonies—only we call them territories and island possessions. We neglect some of them shamefully, and for them we feel little interest or responsibility as citizens. But our conscience doesn't bother us. It is the British Empire that exercises us. Some of us even call upon Britain, as a friend and ally, to divest themselves of their empire. Divest themselves to whom, for what purpose, with what results?

These attitudes may get us into plenty of trouble. They are extremely dangerous to British-American relations, and may even obstruct the conduct of the war in the Pacific. And they are almost certain to get many colonial peoples the world over into plenty of trouble. For one of the primary facts of life to be observed as one travels around the world is that there are many, many places in the world—islands in the Caribbean and the Pacific, regions in Asia and Africa—where people are not sufficiently advanced either culturally, or economically, or politically to govern themselves in this modern, competitive world. Withdraw foreign control and administration, and the people of many of these areas, as in our own Puerto Rico, would starve to death; others would lapse quickly into anarchy; and others with rich resources would inevitably tempt other powers to seize control. The crude fact is that, if you withdrew foreign control from many regions of the world, you would condemn many tens of millions of colored people, who now have the possibility of developing into self-governing communities, to perpetual servitude to a few thousand local white landowners. In most cases, the metropolitan colonial office is the real protector of the interests of the native peoples. When you talk about freedom for backward peoples, it is necessary to ask, "Freedom for whom?"

International Administration No Solution

All right, then, it is suggested, let's establish international administration over colonial areas. Let's let the new League of Nations rule them. If there is one thing that all colonial administrators and experts from all countries agree upon, it is that international administration is perhaps the worst of all possible solutions. Everybody's responsibility is nobody's responsibility. There have been a number of international and bi-national administrations: Tangier, the Hebrides, Dantzig, the Sudan. These experiments have recommended international administration to no one. Colonial administration is a highly technical and subtle business, involving not only law and bread, but the imparting of culture, self-confidence, national spirit, tradition, habits of responsibility, democracy, self-restraint. The impersonality of international administration is one of the main reasons why colonial experts who know the problem of advancing colonial people reject it. And the intelligent and vocal leaders among colonial peoples usually do not like it at all.

There is, in short, no fancy short-cut for colonial peoples from political and cultural backwardness to maturity, from poverty to riches, from foreign control to self-government. Even after looking hard and wide, there is no satisfactory substitute for single-power colonial administra-

tion while colonial peoples learn self-government.

The process of colonial advancement can, however, be greatly improved and speeded up. And the colonial policies of individual nations must take account of two new facts of international life: (1) the decline of Britain's world power and the rise of the power and influence of the United States and the Soviet Union; and (2) the very real new international interest in the welfare of colonial peoples.

Great Britain Dominant Colonial Power

In a real sense the possession of colonies is a function of power. Power is necessary to acquire and to defend colonies. It is no accident that during the 19th century Great Britain, whose navy ruled the seas, whose foreign policy moved the world's chancellories, whose finance, industry and commerce towered over their rivals, should become the world's principal colonial power. The other colonial empires—the French, Dutch, Portuguese, Belgian—were satellites of the British Empire, existing on sufferance while the mother countries remained friendly to Britain; they were ultimately protected by the British navy.

But this British power—naval, industrial, commercial, financial—upon which the world imperial system was based was challenged by Germany in 1914. With aid from the United States, the challenge was contained and defeated on the Continent of Europe. The world's empires, for the most part, escaped invasion and remained intact, giving the appearance that nothing had changed in the imperial system. This was sheer illusion. For financial and industrial supremacy shifted after the war from Britain to the United States; commercial supremacy became widely dispersed; and it was clear that, without the military and naval help of the United States, which was to withdraw into isolation and could not be committed, the power—primarily British power—supporting the imperial system was insufficient to discourage a second challenge. The second challenge came in 1939. The homelands of three leading colonial powers—France, the Netherlands, and Belgium—were occupied by the enemy; a substantial portion of the world's colonial area (including, it must always be remembered, our own Philippines) was seized by the enemy; and England herself besieged and threatened with invasion. This time, again, external power, that of the Soviet Union and the United States, is defeating the German (and Japanese) challenge, and will redeem the lost colonies from the Axis. But this time the weakness of the colonial powers, the inadequacy of the power supporting the imperial system, is glaringly evident.

Here, then, is something new: general recognition in the world that in the future no single colonial power can defend itself or its Empire without collective security involving active participation by the United States and the Soviet Union. And there is an irrevocable logic in the world which somehow balances rights with responsibility. These two inescapable facts jointly decree that the United States, the Soviet Union, and any other country that contributes actively to the keeping of world order shall have a say about the kind of order that is kept, especially in colonial areas. Contributing importantly to this decree is the realization that any effective security scheme involving outlying air or sea bases demands that political vacuums surrounding these bases shall be filled with contented and cooperating (i.e., economically and politically advancing) people, and that they be defended from attack or infiltration by the enthusiastic will and resources of the local populations. These are not theoretical conclusions. One needs only to look around him to find Americans, at least, asserting as never before their right to give advice about other people's colonies. It is an inevitable development. But it raises acutely the question how, through what mechanism, the influence of the United States and the Union of Soviet Socialist Republics and the collectivity of nations is to be made felt on the colonial policies of other countries.

War Brings Out Latent Idealism

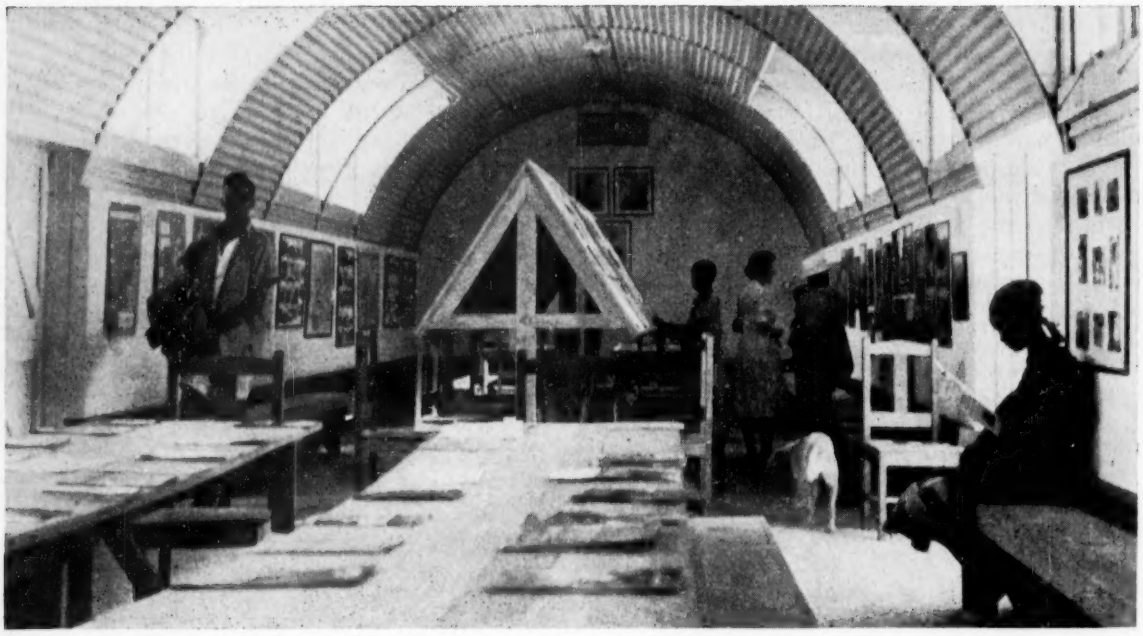
Aside from *rights* based upon the shifts of world power, wars usually arouse a great deal of latent idealism in the world, a spontaneous effort to justify the awful sacrifices of war by making the world a better place to live in. This war is no exception, witness the Four Freedoms and revival of interest in the problems of depressed peoples everywhere. After World War I, the growing sense of international moral responsibility

3 & 4 Geo. 6. *Colonial Development and Welfare Act*, 1940. Ch. 40.

CHAPTER 40.

An Act to make provision for promoting the development of the resources of colonies, protectorates, protected states and mandated territories and the welfare of their peoples, and for relieving colonial and other Governments from liability in respect of certain loans.

[17th July 1940.]



In a Nissen hut, books point the clear road to progress for Africa's Gambians, and this British information bureau is popular with colonial natives of Gambia

for colonies found expression in the mandate system, but that concept of international trusteeship was accepted only for ex-enemy colonies. Out of this war is growing an acceptance of international trusteeship or accountability for *all* dependent peoples. There is growing in the world a new sense of responsibility for speeding up the economic and political development of backward peoples.

What is the answer, then? If, on the one hand, there is a new power basis and necessity for giving the United States and the Soviet Union a voice in colonial matters, and a growing international sense of moral responsibility for colonies, and yet on the other hand freeing the colonies is a cruel hoax and international administration will not work—what, then, can be done?

A New World Colonial Policy

The answer lies in a new world colonial policy which has been evolving for several years in Great Britain, with stimulation and support from the United States. And British colonial policy sets the pace. This policy has two main features. One involves the spending by colonial powers of large sums of money on the colonies, financing large-scale programs of welfare, education, medical service, and economic development, in the belief that these are essential prerequisites to a speeded-up political advancement. The other involves what is known as colonial regionalism, which means that, while existing colonial powers will continue in full charge of administration in their respective colonies (enemy colonies, of course, excepted), they will pool experience and initiative and join together in the planning and execution of programs of welfare and development for whole colonial regions—such as Southeast Asia, the South Seas, West Africa, and the Caribbean—where many powers have colonies with common problems. Moreover, and this is important, it would involve admitting to the regional planning and advisory boards not only the powers in each region having colonies, but also other powers having special interest in and responsibility for the security and economic development of the region. Thus, the United States would naturally be admitted to a West Africa regional commission, and the United States and the Soviet Union would be admitted to a Southeast Asia regional commission. Planning for colonies, and judging of results, would thus cease to be the sole prerogative of the individual colonial power; it would become international at a practical level: a level at which nations are prepared not only to give advice but also to assume responsibility.

The spending of the Mother country's public money on welfare and development in the colonies may not seem revolutionary, but it is. While current beliefs that colonial powers have "exploited" and "bled" the colonies for the benefit of the homeland are, in large part, fiction, at least in the last quarter century, still the least one can say is that the colonial powers have expected the colonies to pay their own way. Their position has been that the colonies could have only the educational, medical, and other social services which they could afford and the economic development

which private interests found profitable. This was the British position. And the British public in recent years, as a reaction from the Boer War and Cecil Rhodes imperialism and in preoccupation with their own problems of security and employment at home, had become indifferent to what went on in the colonies.

Disturbing Conditions Brought to Light

But in 1935 and after, things began to happen. Riots in the West Indies, strikes in the Rhodesian copper mines, the cocoa hold-up in West Africa (the natives simply refused to sell their cocoa at prevailing prices) shocked British opinion out of its complacency. Royal commissions of inquiry investigated and made reports of deplorable conditions. During this period, too, German and Italian demands for redistribution of colonies caused some soul-searching in justification of colony-possession. The result was that, in July, 1940, just after the fall of France, the House of Commons debated and passed the Colonial Welfare and Development Act, which marked the defeat of the British Treasury's rule that homeland public money should not be spent on the colonies. This act appropriated five million per year for ten years for welfare and development in the colonies, a sum which will be greatly increased after the war, when materials and experts are available to expand the program. The Colonial office has drawn up plans of admirable proportions for speeding-up education, and social and economic progress in the colonies. And, throughout Britain, both in and out of the government, interest in colonial development has greatly increased. Partly responsible for this continued and vastly increasing interest, of course, is the necessity of justifying the return of British colonies lost to the enemy, and the pressure of American criticism of the British Empire, unjustified though much of it has been.

Britain Welcomes Joint Effort

Colonial regionalism was first officially advanced as British policy for general application by Colonel Stanley, British Secretary of State for Colonies, in the House of Commons on July 13, 1943. Modern transport and communications, said Colonel Stanley, have knit together vast areas that before were widely separated. Moreover, he continued, problems of security, of transport, of economics, of health, and the like, transcend the boundaries of political units. The British Government would, therefore, welcome, he said, the establishment of permanent regional machinery to enable such problems to be discussed and solved by common efforts, and which would allow other states that have a major strategic or economic interest in the region to be associated with the

Britain's colonial government provided these neat, modern homes for Nigerians

work. Such machinery should also, he thought, give the people of the colonies themselves an opportunity to be associated with the regional commission's work.

Colonel Stanley's proposal has had extremely favorable world-wide reception, and promises to be the foundation of what may become world colonial policy. As is indicated below, the United States had a great deal to do with the development of the idea, and appears to be strongly behind it. The Belgians warmly support it. The French and the Dutch, while not enthusiastic about it, seem to be prepared to go along with it. The Portuguese are not likely to take a line divergent from that of their British ally.

That which already makes colonial regionalism considerably more than a nice idea is the fact that a regional commission of the type envisaged by Colonel Stanley has been in operation in the Caribbean now for nearly three years. It had been in operation for more than a year when Colonel Stanley made his policy statement in the British House of Commons. It was, therefore, in the nature of an experiment, and a very successful one. Formally organized in March, 1942, the Anglo-American Caribbean Commission came into being as a result of United States initiative with the immediate object of helping to solve some of the economic, social, and security (political) problems arising out of United States acquisition of leased bases in the British Caribbean colonies; and, at the same time, it has been consciously developed as a model for other regions of the world. The United States must, therefore, share very im-

portantly in the credit for the idea of colonial regionalism.

The Commission operates at three levels: the big power level, through the commission itself, consisting of three Britons and three Americans and their secretariat—the commission operating as the planning and guiding agency; the expert level, through joint research organizations dealing with problems such as health, plant disease, nutrition, industrial development, and so on; and the colonial level, through a permanent West Indian Conference, composed of two representatives from each colony, and a permanent conference secretariat. For various reasons, the Conference has thus far been restricted to British and American membership; but it is expected that later the French and the Dutch, with their Caribbean possessions, will be invited to participate. It was felt, for one thing, that method could be more easily developed in the early stages if membership were limited to the two countries at first.

Further Groupings Being Considered

Further regional colonial machinery has not as yet been established, but it is interesting to consider what further groupings seem logical and likely. One of the most obvious and most talked about is a Southeast Asia Commission, to include the Dutch East Indies, Malaya, French Indo-China, the Philippines, Thailand, Portuguese Timor, and British Borneo, Sarawak and Brunei. Sitting on a regional commission, in addition to the colonial powers of Great Britain, France, the Netherlands and Portugal, would be the United States, the Soviet Union, and China. This would be perhaps the most important of all regional commissions. It is an area extremely rich in natural resources; it is an extremely important area strategically; and most of the colonial peoples involved are already fairly well along the road to cultural and political maturity. A program of economic development, political advancement, and common world trade and security policies worked out and administered through regional machinery, with all major powers and all the local colonial powers participating, could do much to promote not only the well-being of the area, but the stability and prosperity of the entire world.

South Pacific Colonial Grouping

Another possible colonial grouping lies in the South Pacific. A glance at the map should be enough to show that present political dispositions there are not very efficient. From Papua eastward to Pitcairn it is 5,400 miles; from Honolulu to Auckland it is 4,400 miles. Within this tremendous area there are tens of thousands of islands of varying sizes whose people are of varying languages, races, stages of political development and political allegiance, living in almost complete isolation. After the war, all of these territories will be either British (including the dependencies and mandates of Australia and New Zealand) or French or American. Germany was eliminated from this area after World War I; Japan will be eliminated after World War II. Japan's mandated and other islands in the Pacific will probably be administered in the future by the United States under some international arrangement. This closeness of control will simplify regional undertakings.

A South Seas Regional Commission has already been formally projected in the Canberra Agreement of January 21, 1944, between Australia and New Zealand. It was suggested that the Commission be composed of representatives of Australia, New Zealand, Great Britain, the United States and France. Prime function of the Commission would be to promote the welfare and economic development of the peoples of the various islands through pooling efforts, knowledge, experts, and through working out joint programs. But, at the same time, the Canberra Agreement asserted the right of Australia and New Zealand to be consulted in regard to any security arrangement for the area, and to participate in carrying out any such arrangement. The Regional Commission would seem to offer a splendid machinery for promoting both functions, one of which would be development and the other security.

Aviation Stimulates Interest in Pacific Isles

Because of two principal factors, the Australia-New Zealand initiative may get somewhere. One is the value of the Pacific islands to civil air transportation. The interest of both private and government airlines in the Pacific islands may keep attention focused on them long enough to bring about, in conjunction with other countries, a concerted social and economic policy. The other is the defense factor mentioned above. The construction and maintenance of air and naval bases throughout the area are bound not only to bring economic benefit to the region, but to focus attention upon those problems that will make the people of the islands assets rather than liabilities in time of war.

Other possible regional groupings may be made in the Middle East, in West Africa, East Africa, and South Africa. Of these, regional machinery for West Africa seems to be the most promising, and American participation most likely, for reasons of security and economic interest. The British, for their part, would welcome our increased interest in and responsibility for the development of Africa.

Souvenir of Savo

Scuttled by her crew in November, 1942, at the second battle of Savo Island, this midget Jap submarine has been brought to the surface off Guadalcanal. The tubes still carry unexploded loads.

Will There Be Farms for Servicemen?

Answers to one of our great rehabilitation problems concerning the discharged veteran. *By Ladd Haystead*

The question, "Will there be farms for servicemen?" is coming from thousands of servicemen to the United States Department of Agriculture, to land grant colleges, Veteran Bureaus, county agents and farm editors. According to some estimates, as many as a million and a half men now in the armed forces will want to turn to farming once they are mustered out. Consequently, many officers may be called on to answer questions concerning this important post-war problem.

THE DESIRE to farm once the war is over seems to spring from an idea that farming is the civilian pursuit least like soldiering. The would-be farmer usually has little conception of what farm life is, what the possible rewards are, and, most importantly, what the large list of drawbacks can be.

The GI bill, passed in June, 1944, provides that the Government Administrator of Veterans' Affairs shall guarantee up to 50 per cent loans for veteran purchase of farms, but limits the guarantee to $2,000. As many a wishful veteran has found, that has meant nothing to date, for no machinery has been set up to handle the loans. Eventually, it is expected that banks and other loan agencies will make such loans, reviewing the credit risks with the same glassy eye given civilian loans of similar nature. *It does not mean,* as so many disappointed men have discovered, that the Government *gives,* or even lends, $2,000 for the purchase of a farm.

The Government Provides Tuition

The only money given for farm purchase is the mustering-out pay which can be used for that purpose, or any other. However, farm training is provided for, running from one to four years in agricultural schools, depending on length of service. For this purpose, the government will furnish $500 in tuition and fees and a living allowance of fifty dollars a month, plus twenty-five dollars more if the soldier has dependents. Of small cash value, but of greater intrinsic worth than all of the above, in the opinion of most professional agriculturists, is the pamphlet put out by the United States Department of Agriculture for free distribution to servicemen entitled "Shall I Be a Farmer?" It can be more useful to the veteran than almost any given quantity of money, and is recommended as the first suggestion an officer should make to a man who comes inquiring about farming as a possible post-war vocation.

If, after reading the pamphlet and considering the cautions it contains, the serviceman still wants to farm, the fairest deal that can be offered him is to outline truthfully the farm situation as it will probably be in the post-war world. Such an outline will be helpful to the farm boy who knows farming, but possibly does not realize the changes that are going on day by day in the international agricultural picture. To the uninitiated, it is almost mandatory if there is to be any chance of success.

First, unless there is full urban employment plus some export business, it is a reasonable guess that American farmers will have a surplus problem on their hands again as they did in the Thirties. Productive capacity has risen 38 per cent over the immediate pre-war years, despite critical shortages of manpower, equipment, and, in some cases, seed and fertilizer. Given peacetime equipment, manufacturing rates, and plentiful labor, it is anyone's guess what an abundance America could produce. That abundance might well choke our agricultural economy, making it difficult for any but the best trained and financed farmers to survive; and nearly impossible for a newcomer to hope for security.

Second, most of the fertile lands of the country were under cultivation even before the war. There is no more new land available. While it is true that the Government took over vast tracts for camps, bomb ranges and ordnance purposes, by far the largest portion of such lands were not, and never will be, economically productive areas. In short, with the exception of minor quantities of lands yet to be drained or irrigated, about the only opportunities to get started in farming is to buy a going concern—and for the most part they come higher than $2,000.

Third, the know-how necessary to have even a good gambling chance at success in farming has increased beyond the imaginings of most laymen, and not a few farmers. New techniques, new uses of agricultural sciences, new hybrid seeds, new ways of handling fertilizers, insecticides and disease controls both in plants and livestock make today's farming one of the most complex businesses in our economy.

All of this may seem very discouraging. It may cause some resentment. On the face of it, a great country such as this United States ought to be grateful enough to its servicemen to somehow provide farms for those who want them. But the experience after the last war is still too fresh in mind. Then, gratitude exceeded common-sense. The result was that nearly every effort to settle servicemen on the land failed. And this time conditions are even less propitious than they were a quarter of a century ago. The kinder thing is to make haste slowly and to turn, where it is possible, the desire for country life from farm ownership into channels where the chances of success are greater. There is also the added circumstance that not a few industrialists, such as Henry Ford, believe we have reached the peak of industrial concentration and are now in for a period of decentralization. They expect, and some of them have already started, to manufacture much nearer the ultimate consumer.

Benefits of Part-time Farming

This circumstance may possibly be the way out for the servicemen who want the benefits of farm life without the grievous drawbacks of full farm ownership or operation on a full-time basis. Given a widely decentralized industry, it would be possible for hundreds of thousands, possibly even millions of families, to live on part-time farms, enjoy healthful, productive, outdoor activity, raise their own foodstuffs for the most part, and have the security of owning their own homes and at least a portion of the way of making a living.

In such an economy, the technical barriers to successful farming would be from less to non-existent, compared with commercial agriculture. Teaching simple gardening and the care of a few livestock units is feasible and practicable, both from the standpoint of instructor and student. The handling of capital in such a set-up is not the difficult thing it is in the intricate modern farm operation. More importantly, the movement of prices, costs and markets plays little part. Production is for use, not for competitive sale. Costs are largely familial without stated value. Profits are the surety of dining abundantly.

Not only is there the chance that the veteran could find his future in such a picture, but there will be numerous new non-farm opportunities in these communities. A part-time farmer might add to his income by becoming the neighborhood plumber, mason, carpenter, insurance man, mechanic, salesman, employee or manager of a co-operative venture in quick-freezing, textile or wood-fabricating plant, cider mill, or fruit and vegetable storage facility. The mere supplying of one's own food by home effort does not take away the normal American desire for the skilled service of others.

Suppose, for example, an ex-Marine flyer wanted to keep himself air-borne for at least part of the time in his peacetime world. He could save his money to purchase a small dusting plane, then take up residence on a part-time farm in an area

Courses In Farming to be Offered Soon

The U. S. Armed Forces Institute will offer, late this year or early in 1945, a general introductory course in farming, as well as courses in Livestock Farming, Dairy Farming, Crops and Soils, Poultry Farming and Managing a Farm. Correspondence courses in farming may also be taken from agricultural colleges that have working arrangements with the Institute. More information on opportunities to study farming in service by correspondence can be obtained by writing the United States Armed Forces Institute at Madison, Wisconsin, or from your Special Service Officer. Men in service will be able to take any or all of the courses for a fee of two dollars.

The Department of Agriculture and the state agricultural colleges can also help. Most agricultural sections in the United States have county agents who can give specific information about the county in which you plan to locate. From the Department of Agriculture in Washington, D. C., you can get such pamphlets as "Shall I Be a Farmer?," "About that Farm You Are Going to Buy," "Suggestions to Prospective Farmers in Wartime," "Selecting a Farm," "Major Types of Farming in the United States," and bulletins on practically any farm subject.

where crop dusting by airplane is needed. True, his services would be required only part of the year, but that would provide a cash income. If he didn't need to use that cash for living, it could become a relatively larger part of his resources than if he made a higher annual wage but had to pay out most of it for day to day subsistence. And, while crop dusting today is largely the prerogative of big farms, an alert flyer might well sell a community of smaller farmers on banding together to pay his fee while he did the fumigating of the entire locality for less per unit than all of the owners could do if they rated their labor at zero.

Real wages are what you have left over after necessary expense has been paid. And the very fact that a man wants to become a farmer suggests that he is more interested in becoming his own boss than he is in working for someone else, no matter how attractive the deal. A man who has provided his own shelter and much of his food by his own efforts has much more "take home" pay from any cash he does lay his hands on than does his all-cash-wage colleague.

The advantages of the part-time farm, part-time employment by self or by others, is that the necessary capitalization is easier of veteran realization than a full-time farming operation. Also, skills learned in the service can be utilized. Finally, new training need not be so long or so necessary.

To illustrate: Let us take poultry husbandry. This is the usual choice of people new to agriculture. It seems like the cheapest and quickest way to get on the land. But skilled poultrymen know that it costs from five dollars to twenty dollars per bird to set up a going concern, with the average around ten dollars or twelve dollars. A minimum unit which will provide a family living is 1,500 birds. In other words, this seeming "cheap" return to the land costs from ten to twenty thousand dollars. Note that the less advanced for capitalization, the less chance of success. Crowding of birds and saving on equipment causes most losses.

In Indiana, a survey was made to find out how much the returning veteran would need to buy a farm which would return him at least the wages of an ordinary hired hand. The figure came out between $17,000 and $20,000. Many studies have been made of the cost of equipping a modern mechanized farm. They run from three to four thousand dollars on an Eastern truck farm, to seven, eight and ten thousand for machinery alone on the usual successful Corn Belt operation. The capital necessary to get an even break in modern farming has become too high for any but the most shrewd and experienced to tackle.

Unless a man has farm experience and savvy, at least enough capital to pay down a 50 per cent equity in the farm he buys, and then sufficient working capital to carry him through the first season, he should not try farming. If he has, or can get, the capital, but has no experience, then he should avail himself of the educational privileges in the GI bill, to be followed by at least a year as a hired hand before he invests his money. Lacking both adequate capital and training, his best bet is to leave farming to others.

In the latter case, however, he need not despair of living in the country. Country people need and want services just as city folks do. In the post-war world, there will be tens of thousands of gas stations, diners, garages, tourist courts, plumbers, carpenters, cooks, drivers, custom operators of farm equipment, processors of farm raw materials, and a dozen other vocations, manned by veterans who will get the benefits of rural life without the headaches of farming.

Some Problems in Pronunciation

Such vivid names as "Bloody Nose Ridge" on Peleliu are frequently coined by Marines more through necessity than literary flair. Bloody Nose Ridge, for example, was much easier to pronounce than Umurbrogol Mountain, the ridge's proper designation.

The Palaus are full of typical Pacific hazards to pronunciation. Islands in the group bear such names as Anguar, Peleliu, Ngesebus, Kongauru, Garakay, Eil Malk, Gamudoko, Urakthapel, Arakabesan, Koror, Babelthuap, and Arutoerruru. Villages include Ngarekeukl, Omaok, Ngardololok, Garekaru, Goikul, Mizuho, Arumonogoi, Garumisukan, Melekeiok, Airai, and Ngardmau. There also are capes called Pkul A Mlaglalp, Pkulanglul, Ngaramudal, Ngatpokul, and Ngariois. Passages carry such names as Kupamadaoru, Toagel Mlungui, Goraklbad, Namelakl, Aiwokako, Ngangai, and Ngaruangl.

In addition there are such assorted designations as Komebail Lagoon, Namai Bay, Ogiwaru Point, and Ngardmau Bay, all of which cause those who have to handle maps and must talk of such places to look upon one of them, Yoo Passage, as a haven of linguistic rest.—Capt. Earl J. Wilson, Marine Corps Public Relations Officer.

Nudging Robot Bombs Off Their Course

One of the methods used by R. A. F. Spitfire pilots to deal with flying bombs was to range alongside them and shoulder them off their course so that they would crash and explode harmlessly on open ground.

This "bomb-nudging" procedure was the impromptu discovery of a pilot who ran out of ammunition after destroying two flying bombs. Deciding to take a chance with the third, he ranged alongside the "diver," delicately slid his starboard wing beneath its port wing, flicked his control column, threw the bomb's gyro mechanism off balance, and sent the machine spinning to the earth.

The pilot promptly reported the success of the maneuver and all fighter stations were informed, but the novelty of the method led to its being rather discouraged, and it was not officially sponsored until scientific investigation proved that at high speed the air cushion between the two machines sufficed to deflect the flying bomb.

Bomb-nudging was not invariably successful, because, after the first attempt, the gyro-pilots of the high-flying divers sometimes enabled them to recover balance, compelling the attacking fighters to repeat their dash twice or even three times before achieving their object.

A Mustang pilot accidentally found another road to conquest. Screaming down in a power dive onto a flying bomb, he overshot it and tore ahead. Pulling out of the dive, he saw it splash in the Channel and realized that the slipstream of his aircraft had thrown the bomb out of control, downed and drowned it. This method, too, was added to the list of the killers' recipes.—From a British Source, *Military Review,* December, 1944.

The General By LOWE

Snipers Are Overrated

The Japanese sniper is a difficult problem but it is foolish to attribute superhuman characteristics to him. Sniper trouble can be ended with proper fire discipline and a well organized antisniper detail in the rear area.

DURING the earlier phases of the Guadalcanal campaign, many hair raising accounts of the exploits of the invincible Jap sniper were pouring out of the Solomons and spreading like wildfire from unit to unit of our troops undergoing training. These accounts pictured the sniper as having a well coordinated combination of all of the warlike characteristics of Attila, the Hun, Daniel Boone, Simon Girty, Geronimo, Rogers the Ranger, and Jack the Ripper. These were precisely the type of tale the Jap hoped his sniper would generate. His snipers were designed to "needle" our troops, both directly and indirectly. At that time they were succeeding both ways. The Marine on Guadalcanal was learning "the hard way" to fight a war to his front and take a "needling" from the rear at the same time. The Marine at Camp Paikakeriki, Camp Elliott, and Lejeune was "edgy" about whether the training he was receiving was really fitting him to face this terror of the jungles.

Most of the "needling" effect has passed now, and a sniper tale is just another sniper tale. We have learned "the hard way" that the Jap sniper is generally an overrated proposition. More often than not, he is simply an ordinary Jap soldier on a harassing mission. He is not, however, a "push-over," and should always receive his share of consideration in combat calculations.

During the drowsy days between World War I and World War II there was little or no sniper or antisniper training conducted in the Marine Corps. Most of us anticipated a "War of Lines," with all accessories thereto. Our conception of a sniper was of some ex-team shot when we might conceal in a church steeple to pick off General Rommel just in case General Rommel chose to come close enough in the process of picking daisies for his officers' mess table. The technique of employing snipers in relatively large numbers, as a sacrifice measure, and entirely for the purpose of harassing the enemy within his lines, was seldom advocated. Nor was the effect of occupying a seat on the receiving end of this proposition generally anticipated. Hence, little was done about snipers in prewar training. We had to learn "the hard way."

There are certain advantages in jungle warfare which are almost invariably entered on the black side of the defender's combat ledger. The defender is usually able to select the position he will defend, dig in, get up his supplies, site and camouflage his weapons, conceal his personnel, establish his security, and wait for the attacker, all according to a previously prepared plan. The attacker is burdened with the problem of locating the defender, feeling out the position, and blasting his way through it. In the process of so doing, he cannot expect to employ cover and concealment as effectively as the defender because he must move. In moving, he must expose his personnel. Thus the well concealed enemy sniper is automatically provided with an abundance of targets without exposing himself.

Snipers Still Use .25 Caliber

The Japs are now showing a tendency toward .30 caliber small arms in an effort to secure penetration and "brush cutting" qualities. However, the majority of Jap soldiers and practically all snipers still use .25 caliber weapons. Snipers are usually equipped with rifles, carbines, or Nambu light machineguns, all of .25 caliber. The use of telescopic sights by the Japs is apparently negligible, and the windage adjustment on the iron sights of the rifle and carbine is either inadequate or non-existent. Such an arrangement is not conducive to accurate shooting and indicates that from the Jap point of view the sniper is designed to work at ranges where highly accurate shooting is not essential. We are entirely correct in saying the Japs are not good shots when considered from an over-all point of view. (There are, of course, exceptions.) Further, all Jap rifles are bolt action and cannot be compared with our corresponding weapons in potential volume of fire.

The .25 caliber weapon will not cut brush or penetrate like a .30 caliber weapon. It will, however, penetrate our helmet at ranges of 150 yards or more. This is penetration enough in most cases. Its most annoying characteristic is that for all practical purposes the Japanese small arms powder is *actually smokeless* and generates little muzzle blast when used in a .25 caliber weapon. Thus the sniper can "hole up" or "tree up" with any of his three small arms, and although he may fire considerably, we will seldom, if ever, locate him by smoke or muzzle blast. Our rifleman or machinegunner must move from time to time because the smoke and muzzle blast of .30 caliber weapons will almost invariably give away the firer's position. Set up a Browning Light Machinegun and put a half belt through it at an average rate of fire if you are from Missouri. Hence, our

gunner must constantly select and move to alternate positions unless he is willing to receive "visitors." The Jap gunner can hold one position all day long as far as smoke and muzzle blast are concerned.

At the beginning of hostilities (and in many cases even now) the Jap was generally a better woodsman than our Marines. He had been meticulously trained and equipped for jungle warfare long before Pearl Harbor and he had received the training and used the equipment *in the jungle*. The training had been *realistic* and *tough*. Jungle techniques had been developed and proven while we were parading in "blues" at the Marine Corps Base. The Jap sniper had learned to live as successfully as an animal in the jungle while our boys were enjoying a standard of living they had been raised to regard as a right, rather than a privilege. Some said that the old pioneer strain had been bred out of our people, that they lacked the hunter's determination and the hunter's patience. These disadvantages have been largely overcome through combat experience, improved training techniques, improved equipment, and the general adaptability of American youth when put to a severe test.

We find that unseasoned troops have a tendency toward "trigger happiness." The Jap is also aware of this, so he designs his sniper tactics to confuse and harass them, particularly from the rear. Too often the air has been full of flying coconuts, valuable ammunition has been wasted, and good Marines have been killed because of wild shooting by our own men when "needled" by a few snipers. At present, all of our divisions contain a majority of battle proven troops who will handle on their own any tendency toward trigger happiness on the part of the unseasoned. Further, the sniper is now a commonplace accessory of war in the mind of the average Marine, and the assignment of a few reserve fire teams as an antisniper detail usually takes care of the rear and enables the unit to direct its main effort toward the enemy.

He Dislikes Being Expendable

There is no denying the cunning, the brute courage, and the persistence of the sniper, but it is silly to attribute super-human characteristics to him. When he is assigned the task of infiltrating our lines and staying there until he is a corpse, he knows he is being sacrificed and he doesn't like the idea. He may do it but he doesn't enjoy it. When he has succeeded in passing our lines, the pressure has only begun to settle on him. He knows that he cannot relax his vigilance even momentarily. What is he going to do to keep alive when his canteen runs dry and the rations in his pack are consumed? He is forced to steal food from our ration stack and take water from streams under our control. If we diligently watch these and other vital locations, we may be rewarded with a good target. The sniper must rest some time, and he is only one man. If our rear area security is alert, it will work in reliefs and search such places as it might occupy itself if it were operating behind enemy lines. Slight infiltration at night is not serious cause for alarm. The antisniper detail can have a Jap hunt in the morning.

His Shooting Is Handicapped

We know that the average sniper is not, by our standards, a good shot. Further, his weapons are not designed for accurate shooting. If he is hanging in a tree by a belt, in an uncomfortable, cramped shooting position, capable of covering only a limited sector of fire, and if he is out of water, hungry, pestered by mosquitoes and perhaps cursed with diarrhea, the chances are he isn't going to be able to hit with his first shot. Hence, to an alert opponent he will only succeed in giving his position away by firing. Then let's suppose one of our fire teams (which is, incidentally, an excellent sniper hunting organization) gets his general location by listening for dull "plop" rather than the sharp "crack" of his bullets. Maybe they have felt out his fire sector and can approach from his blind side. Every target is a rapidly moving one and hard to hit. Further, no matter how fast he fires that bolt action rifle, any one of our fire teams can fire faster. Worse, this is an organized group looking for *him*. You can bet he's thinking about it! He may stay where he is and attempt to hide, or he may panic and jump to the ground to run for it. Either way his position is not enviable.

You might say he would be better off if he was sniping from a hole, and perhaps he might, but ordinarily enough of the previously stated conditions will apply to hole and tree alike to place him under a considerable mental strain at the least. Jap or no Jap, he can't stand that strain for too long, and he can't be hunted too often without "his number coming up."

The sniper will sometimes pin CPs down, cause people to crawl around on their bellies, and write field messages in the prone position; cause others to bail out of jeeps and crawl under them. If he's hunted and feels he's near the end of his rope he might try a one man banzai charge, or he might jump into your foxhole with you in an effort to blow you both up with the same grenade. Regardless of what he might do, our sniper trouble is almost invariably cured by proper fire discipline in our troops and the proper functioning of a well organized antisniper detail in our rear area. We can be assured that when the Jap finds our antisniper methods consistently effective, he will employ snipers with less frequency, for the Jap is not exactly a fool.—OBSERVER

Jungle Patrolling—1

In this, the first of two articles on the problems of jungle patrolling, the author emphasizes the importance of adapting oneself to the jungle, and tells how patrols can operate most effectively. *By Major Guy Richards*

VICTORY over the enemy can only follow victory over the jungle. The jungle holds the secret of the enemy's position, screens your own preparations to attack them, screens your ambushes, hides your dumps, your roads, your vehicles, your CPs, your axis of supply and communication, and limits alike your observation and your fields of fire. It also serves as your home. Successful adjustment to the jungle can bring high morale and great tactical success. Failure in adjustment can demoralize your troops and pile one tactical disaster on another.

To most Americans the jungle is a strange environment. For us it often presents more surprises than either war or the enemy. Yet, since the beginning of the war quite a few Americans, Australians, and New Zealanders have been forced into the jungle and have learned to adapt themselves almost as completely as natives. The lessons learned by these men are worth knowing thoroughly. For there are still jungles ahead of us in the Philippines, Formosa, and possibly the Dutch East Indies, Burma, and elsewhere. And if we don't learn to fight in the jungle our training as professional soldiers will be almost as useless as if we were, after all our preparation, suddenly compelled to dive overboard and fight under water.

The jungle is very different from any ordinary patch forest. A characteristic Pacific jungle is generally known by terrain students as a rain forest—a giant growth of high leafy timber rising from 125 to 180 feet, interspersed with secondary growth and tangled vines. It is a veritable botanical garden nourished by a combination of intense rainfall and intense sunlight.

A Limit on Visibility

In a rain forest every growing tree, plant, and vine, stimulated by the heat and abundant rain, struggles for its share of sunlight and reaches upward to obtain it. The result is that nearly every open space is promptly choked with new growth, new vines, new branches, new leaves. This limits visibility on the ground and screens almost completely from aerial observation the troop activities in the jungle below. In such terrain planes are of some assistance, but aerial intelligence adds up to very little in the fund of information vitally needed by commanders of companies, battalions, and regiments in planning their operations.

Information is needed about beach guns and strong points, defenses in depth, road and trail emplacements, dumps and depots, enemy strength and available reserves, the location of flanks, bivouac, and artillery position areas, tank and vehicle parks, and the OPs and CPs of opposed units. Aerial reconnaissance is of little assistance in these matters. And the functions it can perform are prevented by darkness, which occupies half the time, and by poor visibility, which generally occupies about another half. To get this vitally needed information it is necessary to go out and get it yourself. Companies, battalions, and regiments have four methods of doing this. Scouts can be sent out by assault units. There can be direct observation by assault units as they are engaged by the enemy. Use can be made of observation posts commanding a view over enemy territory, and combat or reconnaissance patrols can be sent a considerable distance into enemy territory.

Advantage of the Patrol

The patrol, however, assumes the chief burden. With light machine guns, light mortars, war dogs, and radio, the jungle patrol is the source of the most valuable combat intelligence. Made up of a platoon or a company, depending on the mission, such a force on a probing sweep through the jungle offers the following advantages:

1. It has sufficient strength to operate as an independent unit, for several days if necessary.
2. It is capable of covering a long distance.
3. It has sufficient firepower to draw out and determine the size and disposition of enemy forces engaged.
4. It can provide its own security and to some extent takes care of its own wounded.
5. It can make rapid progress using main trails and roads with excellent assurance that the war dog at the point will provide an alert against enemy contact.
6. It has the facilities for quick communication back to higher echelons of the combat intelligence gained.

The first step in preparation for jungle patrolling is very obviously the proper training of your troops. They should be schooled to the teeth in such basic military arts as scouting and patrolling, observation, field sketching, cover and

concealment, the surmounting of obstacles, terrain appreciation, orientation by watch and compass, field sanitation, and the estimation of enemy positions and strength.

After this basic training, your platoon or company is then prepared for the vitally important exercises in deployment and maneuver from patrol column of single file or column of twos. All the fundamentals of skirmish line tactics, including attack, defense, and withdrawal, should be rehearsed religiously under hand signals, under relayed oral commands and under commands relayed by physical contact. It is also most important that small unit commanders drill themselves extensively in making quick estimates of the situation from sudden alerts.

It is also important to drill your squad and fire team commanders on quick response to orders for target designation, fire control, fire discipline, and the quick emplacement of mortars and automatic weapons from marching position on the trail. On a patrol the enemy's front may suddenly be revealed in any direction. Your ability to probe, attack, or withdraw may be denied you in a matter of minutes by hesitation, by delay in laying down your fire, or by delay in redisposing your strength after the time the situation is revealed. There must be speed in your issuing command, and the commands must be rapidly executed. This takes weeks of practcie under the wretched visibility conditions of the jungle.

Since a patrol can often stir up a hornet's nest of fire from an unsuspected large enemy force, it must retire in a well-covered withdrawal if it is to succeed in reporting its discovery to higher echelon in time. Such a withdrawal cannot be executed if a detached force passes out of unit control. To prevent this, train your squads and fire teams never to pass out of visual contact unless specifically ordered; then to limit them in time, and to insist on the designation of a getaway man who will keep well behind their leading elements but remain in visual contact with their leader. These features must be rehearsed until they become second nature to all hands.

Patrols Likely to Draw Fire

It is not meant to imply that it is the mission of patrols to withdraw, unless specifically so ordered, upon first contact with the enemy. The task of exploring the enemy's position and determining his strength can rarely be fulfilled with-

Setting forth in single file through dense undergrowth, this jungle patrol is prepared for its important job of gathering valuable combat intelligence.

out drawing his fire. However, as much as possible of the exploratory movement should be made stealthily and without detection.

When the enemy force is found to be so small that it can be overcome by your forward fire teams, no withdrawal may be necessary. It is more likely that temporary withdrawal of your forward elements will be expedient to bring your mortars to bear on the known enemy positions. And it is just as certain by its very nature that a patrol must withdraw sometime, either because it has completed its mission without contact or because it has probed deep enough into the enemy's territory to engage an overwhelmingly superior force.

News Should Be Relayed to All

Troops should be trained to respond to unit control, and to employ for their own protection the unit control communication system, including hand signals, runners, and getaway men, to keep you informed of what is happening to them and what they are observing. This news should be relayed to all hands. If it isn't, the morale and efficiency of detached units can deteriorate, particularly if there is firing in an adjoining sector. It is your responsibility to protect your troops against the feeling that a sudden change of plans has left them out on a limb.

Patrol leaders should also impress on their troops the perils of the trip home. Absence of contact in an area traversed earlier is no assurance that it will be found free of the enemy on the return trip. On the contrary, the chances run the other way. The probabilities are high that the enemy has observed or heard your patrol, and will employ small unit infiltration for sniping, harassing, and observation. Troops permitted to relax and converse loudly on returning to their front lines are inviting disaster.

Advantages of Using Dogs

In training your troops for patrols great attention should also be given to the use of war dogs, a full platoon of which have now been assigned to each Marine Division. By using dogs, it is now possible to have patrols follow the trails with the assurance that in most cases the dog will provide an alert against the presence of the enemy before the enemy is alerted to the patrol. Once alerted, the patrol commander can reconnoiter with stealth by sending scouts flankwise and off the trail. Here again the scout dog can be taken with one scout party and by pointing his nose keep the nearest enemy position correctly oriented. Opportunities are thus provided for striking the enemy by surprise, from an unexpected quarter, and for which his automatic weapons have not even been sited. Dogs are equally effective against snipers.

What dogs can and cannot do, both as scout dogs and message dogs, operating with their training handlers, should be taught to your troops in field exercises. For this training, requisition dogs and handlers, both for scout and message service, from higher echelons through the battalion intelligence section.

With the exception of the employment of dogs, jungle patrolling requires no fundamental change in the basic doctrine taught in the Marine Corps on the line of march. It should always be:

1. Point, with scout dog and handler.
2. Connecting files.
3. Patrol commander and main body.
4. Connecting files.
5. Rear point with message dog, handler, and/or getaway man.

Right and left flankers, each consisting of a team of two scouts, should be sent out on each side of your column when the terrain permits. But it is always mandatory to do this when your patrol is resting, crossing streams, passing ridges, open fields, or traversing plantations.

If the trail is more than three and a half feet wide, a column of twos is preferable since it keeps your force from snaking out. On narrower trails the patrol should revert to single file, with each man keeping alternately to the left and right of the trail, always avoiding the middle. Elements in the main body should be designated for keeping watch at all times on the flanks, one watch on the right, one on the left.

Factors Limiting Spacing

Spacing between troops should be between three and five yards. Space between the point, connecting files, main body, and rear point must be determined by visibility. Unless otherwise specified, it is the duty of these elements to set their pace and distance on the patrol leader for the forward elements, and on the main body for the rear elements. Twists and turns in the trail will determine how far they can extend themselves.

Ten-minute breaks are advisable every fifty minutes, though this timing can be altered by the prospective availability of water, and a forty-five minute break is recommended in the middle of the day's march. Selection of a bivouac should be made between 1430 and 1530, and prime considerations in choosing it should be availability of water, and the possibilities for all-around defense. By selecting the bivouac area no later than 1530 the troops will have time to attend to their necessary duties in groups of three—one-third eating, fetching water, visiting the corpsmen, preparing slit trenches and relieving themselves; one-third digging their positions and siting the automatic weapons; and one-third providing all around security.

It is advisable, when you have reason to believe that your patrol may have been observed by

the enemy, to select a second bivouac area into which they can slip after dark. This should be no less than 150 yards from the first, and preferably from 300 to 500 yards distant.

Squad and fire team leaders should designate one-third of their units to perpetual vigilance during specific periods of the night, as follows: One-third on a tour from sunset to midnight, the second third from midnight to 0400, the third third from 0400 until after reveille. The designation of additional sentry posts in such all around defense should be made with the utmost reserve. A third of your force will be on the alert all night, and you have little reason to augment it with sentries. However, one pair of sentries should be posted during the night at the command post, and the two dogs with their handlers should be sited with the two outposts in those positions where it is most likely that an enemy approach will first develop. These outposts will probably command positions at opposite approaches on the trail.

Needless to say, your all around defense should be centered well off the trail but the trail approaches should be covered by at least one automatic weapon each. For this reason it has often been found advisable to arrange the defensive perimeter so that its perimeter impinges on the trail, and its center, including your CP and mortar section, stands well off the trail. Since a surprise attack may require the employment of your mortars at any time, their position should be chosen with a view to firing space between trees, and the branches of trees, in all directions. Where it is necessary to cut away tree branches, the job should be done before nightfall.

The final determination of your perimeter defense will almost invariably find itself caught in a conflict between two requirements—water, which is generally found in the lowest ground, and defensibility, which is found on high or rising ground. If, from a desirable defensive position, water can be found no closer than 500 yards, and there is no other defensible position closer to the water, stick to your original choice. Up to about 500 yards, a tenth of your force, providing its own security, can make a water run and fill the canteens of the whole unit.

Great care should be taken in the morning to police the area, burying tins, ration wrappers, cigarette butts, and removing all traces of your encampment. Foxholes and revetments should either be filled up and/or covered with brush and leaves. The march should be resumed no later than an hour and a half after sunrise.

A second article by Major Richards on the execution of jungle patrol missions will appear next month.

New Board Empowered to Award Decorations

Questions concerning the awarding of decorations to Marines have been clarified by a Pacific Fleet Marine Force General Order under which a Board of Awards, now sitting in continuous session, weighs the merits of each recommendation for an award.

Lieutenant General Holland M. Smith, as commander of the FMF, Pacific, holds the widest authority ever accorded a Marine general in the field concerning decorations. He has been authorized to give all medals with the exception of the Medal of Honor, the Distinguished Service Medal, and the Letter of Commendation Ribbon.

The Board of Awards which acts for him is composed of a colonel, as president, and a senior member of each division and corps in the field. Members must be of the rank of major or above and are field officers chosen for their combat experience. A legal officer acts as recorder for the board.

Colonel Richard H. Schubert, president of the board, in explaining the routine followed in recommending awards said: "First the statements of the observer of the action and the sample citation are read aloud to the rest of the board by one of these members. There are certain qualifications to justify each award, and these regulations are binding on the board. The relative merits of the case at hand are duly considered, and then a vote is taken. A two-thirds majority rules. All medals and decorations are given for outstanding achievement and not for the normal performance of duties. For instance, it is not heroic to remove a wounded man from the front lines when your primary job is to stay in there and fight."

The board is empowered to recommend that awards be raised, lowered, or dismissed altogether, and has authority over all cases after June 14, 1944. Upon approval of a decoration, the citation is written by a member of the board to fulfill all legal requirements as to dates, place of action, and freedom from clerical errors. The award then is made on the authority of the Commanding General, and a temporary citation is given. Later, a permanent citation is issued from Headquarters, U. S. Marine Corps, Washington, D. C., bearing the signature of the Secretary of the Navy.—T/Sgt. Nolle T. Roberts, Marine Corps Combat Correspondent.

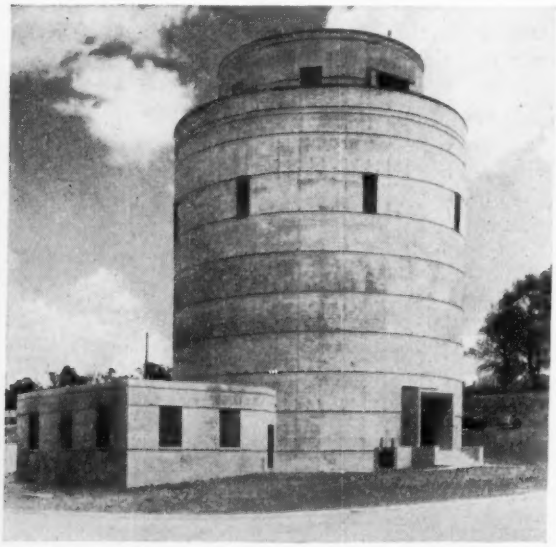
What's New

Trends of Military Interest.
By S/Sgt. Ray Moulden

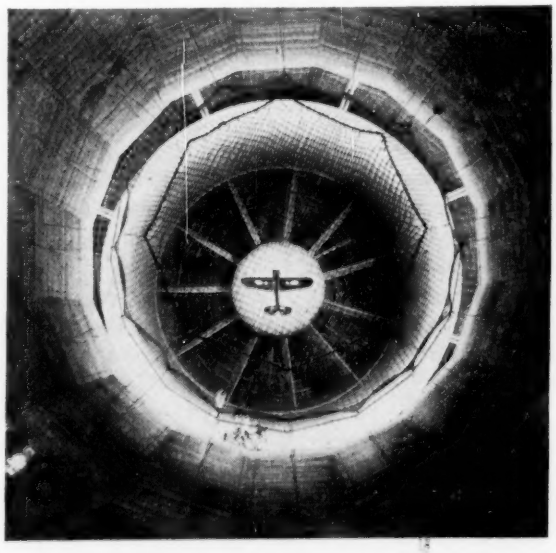
SUCCESS OF OUR ROCKETS, bazookas and other high explosive ordnance is due, in large part, to development of Pentolite, an advanced version of the PETN (pentaerythritol tetranitrate) invented in 1891. In undiluted form, PETN is 40 per cent more powerful than TNT, but it is so sensitive to friction as to be almost unusable. Army ordnance, after years of experimentation, developed Pentolite, made by nitrating an alcohol formed by treating a mixture of formaldehyde and acetaldehyde with lime. This, in effect, is PETN mixed with TNT, and the resulting explosive is 20 per cent more effective than TNT alone. A small quantity will blow a two-inch hole through five feet of reinforced concrete. In addition to giving the bazooka and other rocket ordnance terrific punch, Pentolite now also is used in rifle grenades, antitank explosives, certain artillery shells and for demolition. Penolite now is heated below the boiling point of water and in pasty form poured into shell, a much faster process than press-loading.

NEW SPIKE BOMBS, improvised in the India-Burma theatre, are now being made to order in this country to give greater effectiveness to attacks on Jap railroads and bridges. It was found that ordinary 100-pound bombs with delayed action fuses had a tendency to bounce off rail rights of way and explode a few feet away, rendering them partially ineffective. It was necessary to use delayed-action bombs in order to permit the low-flying planes to escape the explosive blast. Hence, the spike bomb was developed; a projectile in which the nose fuse was replaced by a spike made of an old axle, one end of which was threaded to screw into the missle and the other sharpened to a point. This bomb, when dropped squarely between the rails or on a bridge, impales itself where it falls and explodes there, with far greater effectiveness.

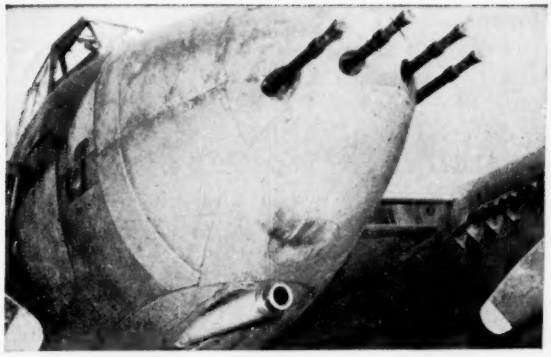
SUBMACHINEGUN DESIGNED to fire German ammunition has been developed by Army Ordnance Department. The Army is supplying the European underground troops with thousands of these M3 submachineguns equipped to fire the 9-mm. German ammunition instead of the caliber .45 rounds normally used by our troops. The standard M-3 weapon now can be converted quickly by insertion of a new barrel, bolt and magazine designed for the 9-mm. round, enabling underground troops to utilize the stores of enemy ammunition frequently available. Army ordnance is also supplying an initial supply of 9-mm. ammunition. The M3 weighs less than nine pounds, and will fire 450 rounds a minute. Each clip contains thirty rounds.



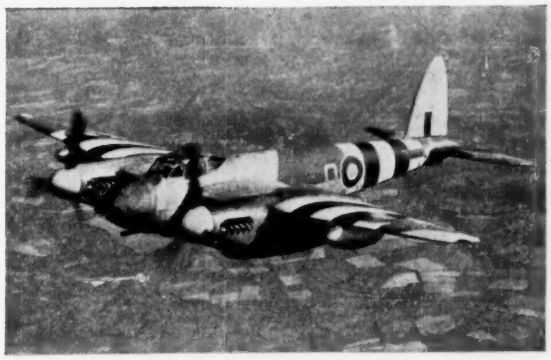
Largest and fastest of its kind is this eighty-foot wind tunnel at Wright Field.



Inside the wind tunnel, a scaled model of a new AAF plane undergoes its test.



A six-pounder and four .303 machineguns arm the nose of the RAF's new Mosquito.



The effective six-pound cannon projects plainly from the nose of this Mosquito.

CORRUGATED-STEEL PARACRATES are replacing the plywood paracrates and paracaissons used for dropping the component parts of the 75-mm. howitzer to air-borne field artillery units. The containers were drop-tested from various altitudes on all kinds of soil, and on concrete airfield runways. No damage occurred to any equipment, and the steel crates, though slightly dented, were found suitable for use again if necessary. Typical paracrates measure fifty-one inches in length, eighteen inches in width and seventeen inches in height. The container is an oval cylinder, opening into two equal sections. The wheels of the crate, designed to expedite its ground transport, are stored in the front compartment, and ammunition for the howitzer is stored in the rear. The 75-mm. weapon, ideal for jungle fighting, is effective at four miles, and six of its 15-pound, high-explosive shells can be lobbed into the enemy a minute. Its forty-three parts can be assembled without aid of a single tool.

JET-PROPELLED HELICOPTER has been completed and flown successfully in model form by Georgia Tech engineering experts after nine years of experimentation. Developed from a revolutionary principle invented by the late Prof. Montgomery Knight, former head of the school, the model proves, according to the University's School of Aeronautics, that a full-sized plane of this type is feasible. The rotor on the helicopter is operated by means of a jet of air in the same manner that a stream of water revolves the common lawn sprinkler. The air is discharged at the tip of the rotor blade. Chief advantage is said to be elimination of torque reaction, because there is no mechanical connection between rotor and fuselage. Air is drawn in through nose of the ship through a duct system by a high-speed axial blower, passes through the hub and into the hollow blade.

BRITAIN'S PLYWOOD FIGHTER BOMBERS, the fast, twin-engined Mosquitos, are now being armed with a six-pound cannon slung beneath the fuselage. The cannon, used in the same way American forces employ the 75-mm. cannon in the B-25 bomber, is capable of sinking U-boats, destroyers and small ships. In one action, a British pilot opened fire on a Junkers 88 at the range of a mile and blowing off the enemy's port engine, sent the craft crashing into the sea.

JAPAN HAS A NEW ZERO, according to dispatches picked up by the Federal Communications Commission from the Japanese Domei News Agency. Domei told its listening stations in occupied Asia that the new Navy Zero is superior in power and performance, and is an "efficient and remarkable" plane. It is designated the "Raiden (Lightning)," and is supposed to have been in action over the Philippines. No word on its effectiveness or other performance details have been received from allied sources.

THE NAZI V-2 BOMB, apparently doing considerable, though hit-or-miss, damage in parts

This gas mask was designed by the Army for hospital patients with head wounds.

Nash-Kelvinator tests a helicopter, the first built by assembly line technique.

of Britain, is a rocket approximately forty-six feet long, six feet in diameter at the base, tapering to four feet at the tip. Weighing about fifteen tons, each rocket is lifted by special crane to railway cars and shipped to point of launching. There, placed on cradles, they are hauled to the launching site. They are stood on end, apparently without exterior support, and fired vertically into the stratosphere. In some instances, the huge rockets have misfired, exploding partially in the air after a short rise, and falling back on the launching site, to explode fully upon impact.

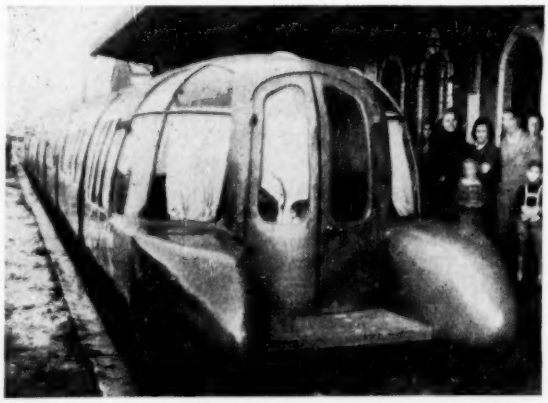
U. S. NAVY ROCKET BILL will reach $100,000,000 monthly within the next four months. This is for rockets alone, or as much as is now being spent each month for all types of Navy ammunition. The Army will spend about $12,000,000 a month for rockets throughout next year. New surprises for the enemy also are in store, rocket-wise, but these cannot yet be discussed. A recent Office of War Information document on development of rocket warfare states that our ordnance experts have been concentrating on eliminating inaccuracies of rocket fire, rather than on such morale-destroyers as the Nazi V-2 rocket. It is now disclosed that rockets are used on seven types of American planes: The Army's Lightning, Aircobra, Warhawk, Thunderbolt and Mustang, and the Navy's TBF torpedo planes and Bell-manufactured jet-propelled planes. Newest rocket is the 4.5 M-8, roughly twice the diameter and length of the bazooka projectile, which equals firepower of the 105-mm. artillery weapon. Yet, the M-8 launcher costs only $104, compared with $8,406 for the artillery piece.

U. S. FLEET IS NOW AT 51,000 ship level, of which 1,155 are combat vessels. Tonnage delivered through December for 1944 totalled 1,450,000 tons of new fighting ships, while full naval personnel now equals 3,100,000, including 475,000 Marines and more than 169,000 Coast Guardsmen. The Navy undertook successfully twenty-four amphibious operations during 1944, and the power that made the landings possible must be retained after the war, according to Navy Secretary James Forrestal.

A MAGNETIC COUPLED TORQUEMETER, which sets up a "magnetic tailwind" and may enable pilots to extend the range of their bombers 100 miles or more past present capacities, has been developed by Westinghouse Electric and Manufacturing Company. The so-called tailwind makes it possible for a bomber pilot to determine the power output of his engines with greater accuracy than currently. With this precise information, the engines can be adjusted to achieve maximum fuel economy. Thus, according to Westinghouse engineers, 5 to 10 per cent more miles can be squeezed out of each gallon of high octane gasoline. On a long-range mission, this can mean the difference between returning to base with gas to spare and bailing out or crash landing over enemy territory or at sea.

The instrument is described as measuring the twist in the hollow steel shaft connecting engine and propeller. The amount of torque is an accurate measure of the driving force delivered to the prop by the engine. Operation of four torquemeters on a heavy bomber will require no more electricity than to light an ordinary electric lamp. The four meters add less than the weight of ten gallons of gasoline to the plane's tonnage. The present master engine chart and formula used for adjusting engines for various speeds and altitudes may be in error 10 to 15 per cent. This error in figuring horsepower may often result in improper adjustment of the engine controls so that the engine consumes more fuel than actually required for the work it is doing.

SUPER-MAGNETIC ALLOY developed by the Japanese forms an integral material in American radio and radar and is paying enormous dividends in our operations against the Nipponese.



A speed of 80 m.p.h. on mountain curves has been reached by this Spanish train.

Professor Tokushici Mishima, of Tokyo Imperial University, developed the alloy, now called Alnico. It was introduced into this country just before the war and is now used by every radionic manufacturer. Alnico's great value comes from its light weight, great magnetic strength and permanence. It will lift sixty times its own weight of iron or steel. A piece the size of an ordinary pencil eraser makes a magnet stronger than the large horseshoe magnets of the toy stores. Alnico retains its magnetic strength under mechanical shock, vibration and temperature changes of several hundred degrees that would soon reduce old type magnets to blobs of inert metal. Zenith Radio Corporation, authority for the new disclosures of Alnico's original source, states that the United States gained more from this one discovery of the Japanese than Nippon obtained from us with all the iron, steel and gasoline we sold it in prewar days. No specific information on the use of Alnico by the military can be discussed for reasons of security.

NEW GERMAN RADAR has been seized by Swedish air authorities from the plane of a leading Nazi test pilot who flew to Sweden and obtained refugee status. This is the first of the advanced radar equipment developed by the Nazis to fall into Non-axis hands. It is similar, in most respects to the American radar.

FOUR-PASSENGER HELICOPTER SEDAN, easier to operate than many automobiles and costing only one-quarter more than the average car, has been announced by Bendix Helicopter, Inc., for immediate mass production upon close of the war. Noise and vibration would be eliminated by doing away with the cyclical pitch change which twists the wings with every revolution of the rotors. This model will also eliminate the antitorque propeller used in most other helicopters. The sedan will have a top speed of about 140 miles an hour, with a cruising speed of 120, and a minimum rate climb of 600 feet per minute.

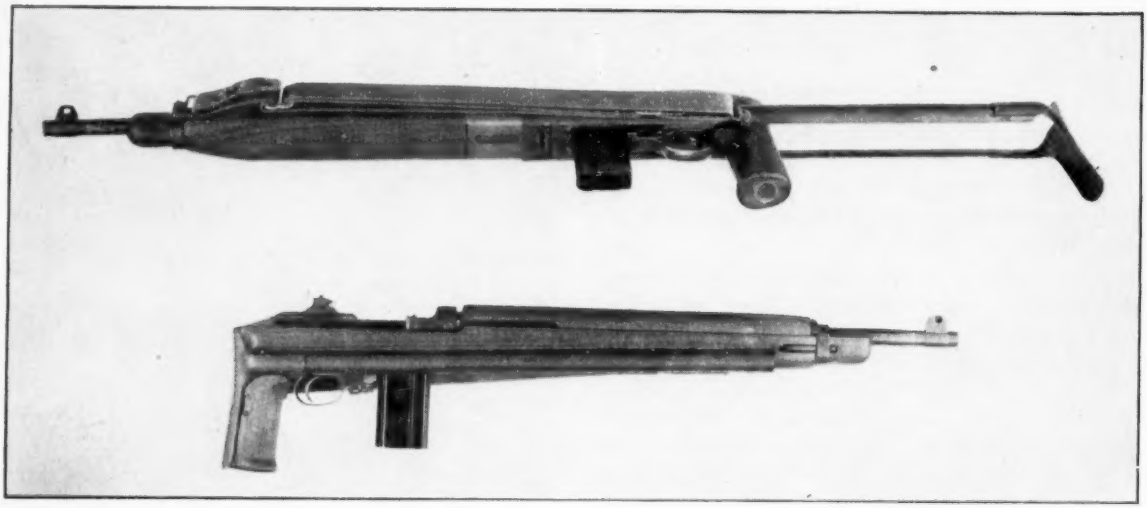
Powered by turbine, this locomotive is minus cylinders, pistons, driving rods.

The Army's new form-fitting sleeping bag is now being used on the Western Front.

SHARK-REPELLENT which has proved satisfactory in experimental tests has been developed by the Navy. The chemical used is incorporated in a packet to be attached to life jackets. It dissolves in the water as an inky fluid which discourages sharks from attacking the person using the repellent.

REVERSIBLE AIRCRAFT PROPELLERS—propellers that are capable of reversing their thrust for use as brakes are being fully developed by the AAF Air Technical Service Command at Wright Field, Dayton, Ohio. Such reversible pitch props have been used successfully for some time experimentally, and have cut landings by several hundred feet. AAF is speculating that the propellers may be used in conjunction with take-off rockets, enabling giant airliners of the future to operate on regular schedule at airports now scarcely large enough for emergencies. AAF has used such propellers on a heavy ship, and halted the plane in 900 feet of runway landing, using brakes as well. Using only brakes and flaps, the big craft could not stop under 1500 feet.

MUSTANG IS WORLD'S FASTEST propeller-driven airplane with a new official speed



The Army's new model of the .30 cal. carbine, with sliding pistol grip instead of a stock, is shown, above, with stock extended and, below, with stock closed.

of 450 miles an hour. War Department permitted North American Aviation, Inc., to disclose the performance record of the P-51 Mustang fighter. Jet-propelled planes achieve much faster speeds, but so far as is known the Mustang is well ahead of its rival reciprocating engine craft.

MISCELLANEOUS—Army Chemical Warfare Service has developed a gas mask which will fit over any kind of dressing or other protection placed on men with head wounds. . . . Silent, vibrationless airliners are foreseen for the future by Lt. General Barton K. Young, Chief of Army Air Forces Training Command. . . . Military transport with speed, range and high altitude performance of the B-29 is undergoing tests by Boeing Aircraft Company; specifications call for 100 passengers of 35,000 pounds of cargo, speed of 400 m. p. h. and ceiling of 30,000 feet. . . . Newest jeep is one which can be hauled, pushed or ridden through the jungle; it has wheels that can be locked in position for hauling over terrain otherwise impassable, and a flat platform instead of seats.

The Navy has announced use of its new gyroscopic sight and fire director which provides an automatic lead on targets and enables ships to blast enemy planes out of the skies before they are close enough to attack; this sight has been adapted for aircraft as well as surface ships. . . . An aerial bomb made of porcelain is proposed by James D. Long, of Laurel, Md., whose patent covers a metal-less bomb containing pellets of shrapnel made also of porcelain; an inexpensive, effective missile is claimed. . . . A British auto company has built the "perfect car" for a Russian government official at cost of $20,000.

"Shrinkproof" wool sock, compared with original, left, untreated washed, right.

The following list shows the source from which each picture in this issue was secured. All pictures not credited are either official Marine Corps or Navy photos.

12, 13 Coast Guard
21 Coast Guard
22 Signal Corps
26 Signal Corps
30, 32, 33, 34 W. H. B. Smith
57, 58, 59 British Information Service
72 (both) Air Technical Service Command
73 (top) British Information Service
74 (top) Nash - Kelvinator
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74 (bottom) Press Association
75 (top) Signal Corps
75 (bottom) Press Association
76 (top) Ordnance Dept.

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Books

Recent Offerings for Military Readers. Books Reviewed May be Obtained from The Gazette

A Study in Command

*Lee's Lieutenants, Vol. III,** the final volume of the excellently written works of Douglas Southall Freeman covering the years of the Civil War in Virginia with the senior officers of Lee's Army of Northern Virginia. Written like fiction, it is interesting reading, and gives the reader a clear picture of the closing months and year of the war. The campaigns and battles that were fought, the officers and men who fought them, their hopes, ambitions, triumphs, and failures are all vividly portrayed.

To those who have read the preceding volumes, little need be said in behalf of Volume III. Painstaking, careful, and arduous research was necessary to accomplish the excellence of the first two volumes, and Volume III has been as well supported.

Through the pages of Volume III the reader follows the fortunes of Lee and his lieutenants from the disaster of Gettysburg through the horrors of the Wilderness, the fall of Richmond, and the final hopeless days leading to the surrender at Appomattox. The death knell of the Confederacy is sounded at Gettysburg, and its inevitable defeat becomes increasingly certain as battle follows battle.

The leadership of Lee is still unexcelled, but the grim spectre of attrition due to battle has weakened the Army of Northern Virginia. At Gettysburg, the indecision of Ewell and the strange behavior and delay of Longstreet, together with the bungling and poor staff work of inexperienced leaders, results in defeat. Jackson is not there, and how greatly he is missed is apparent. Stuart is criticized for his failure to provide proper reconnaissance at Gettysburg, but he serves Lee well in the following months until his death in battle. Lee says of Stuart: "He never brought me a piece of false information."

In thirty-one days of fighting, from the Wilderness to Cold Harbor, Lee's losses of general officers are so great that their replacement with competent men is impossible. Command in the Army of Northern Virginia suffers and begins to deteriorate. Lee is forced to intercede more and more in the command of the corps and divisions.

It was impossible for one man to direct all the units of the Army of Northern Virginia. In spite of Lee's efforts, the situation worsens until, in the campaign of Petersburg to Appomattox, command in the Army of Northern Virginia virtually collapses.

In addition to being a study in command, *Lee's Lieutenants,* Volume III, and the preceding Volumes I and II, offer an unusual opportunity for comparison of the functioning of command in Lee's day with that of the present. Staff work in Lee's Army of Northern Virginia was rudimentary and often practically nonexistent. Communications and methods of supply were slow and difficult. Orders were usually oral or fragmentarily written, and, consequently, were often misunderstood. The military man will indeed find much food for thought in Volumes I, II, and III of *Lee's Lieutenants.*—H. B. M.

* **Lee's Lieutenants,** Vol. III, by Douglas Southall Freeman (Scribner, 862 p., $5.00.)

Tides, Current, and Weather

For the average person interested in the far-reaching aspects of the Pacific war, *Pacific Ocean Handbook** should prove a convenient and illuminating guide to the ocean which covers a third of the earth's surface. For the person fighting in the Pacific, it provides a ready, compact source of innumerable details concerning the islands, ports, weather, and, to a limited degree, political significance of all parts of the area which, from being a main highway for over half the world's population, has turned into a major battleground of World War II.

The book, of course, does not pretend to be a technical handbook on any one point. It rather is a condensation of such points as geological history of the area, climate, distances, terrain and significance of the islands and bordering continental regions, numerous interesting facts concerned with navigation, and a series of maps which are excellent representations of the area from the viewpoint of the amateur strategist, the business man, the seaman, and the aviator.

An index makes the book valuable for quick reference . . ."—M. H. C.

* **Pacific Ocean Handbook,** by Eliot G. Mears (James Ladd Delkin, Publisher, 198 p. Pocket size, $1.00.)

Nations of the World

Prepared under the general editorship of Sumner Welles, former Undersecretary of State, *An Intelligent American's Guide to the Peace** is a study of the nations of the world today. Each country is described according to a pattern which sets forth not only its physical characteristics but the racial origins and traits of its inhabitants. The nation's economy is outlined in its relationship to the rest of the world, and its history is presented from 1914 to 1944. Finally, a brief summary of the country's stakes in the peace is set forth.

While this might indicate that the book is solely a collection of facts, such is not the case. The swift pace of current events is always evident to give the reader a sense of action. Written to give "the average reader" basic and factual information necessary to understand some of this country's major problems, the book succeeds in this purpose and does more. By its marshalling of facts, it emphasizes the fallacy of isolationism.

The United States, it points out, can only proceed creatively along the path it has chosen in a world of peace. The first step is to defeat, disarm, and render harmless the aggressor nations. Then a policy of creative concord with the other nations of the world can be carried out. This long-range policy, however, entails certain supplementary considerations, among which are: "(1) the inter-American system, whereby the welfare and common security of the western hemisphere can be assured; (2) the continued friendship with the British Commonwealth of Nations; (3) the development of economic relationships and historic friendship with the Soviet Union; (4) the friendship with China and effective aid to the Chinese people—for upon these factors depends the security of the United States as a power in the Pacific; (5) the restoration of democratic France to her former greatness and importance as a nation. Furthermore, the United States must also consider the future of the German and Japanese peoples; she must undertake to influence world trade, investment, and finance in such a manner that these peoples, controlled and disarmed, can embark upon a stable and satisfactory course.

"If the United States is to accomplish the objectives implicit in her own productive evolution, she must steer a creative course in economic relations. She must turn from the self-centered tariff policies that have been so costly to world prosperity and shape her own trade policies so that other nations may deal with her. She must, in turn, assure herself equal facilities for trade with other nations, so that mankind may be enriched by the exchange of needed goods . . ."—J. C. K.

* **An Intelligent American's Guide to the Peace,** The Dryden Press, 370 p. $3.75.

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Textiles for the Armed Forces

Suggestions for Personnel Classification Under Combat Conditions

2nd Lt. Robert G. Boydstun

THE purpose of personnel classification is to facilitate assignment of officers and enlisted personnel of the Marine Corps to duties in which they will be of greatest value to the service. Proper assignment is dependent upon proper classification, since classification is the process whereby all pertinent data concerning a Marine's education, intelligence, aptitudes, military experience and training, civilian work history, interests, hobbies, and other qualifications are validly obtained and correctly recorded. The classification process is therefore not in itself an objective, but rather a means to the end whereby no factor contributing to a Marine's value to the service will be overlooked.

All of this has proved itself very valuable in Recruit Depots and Training Centers. But what about its use in the field? Is personnel classification to be a rear echelon job or can it go into battle and do a good job in its own field? From my own experience, I am convinced that personnel classification is as important in the field as it is in the States.

I have had my section in the field twice; the Marshall Islands and Marianas Islands. During the Marshall Islands operation one officer and two enlisted classification personnel were assigned to the RCT. Never having been to combat before we had to make a job for ourselves. Our regiment suffered very light casualties, therefore our particular section had little to do. At the end of two days the objectives had been secured, and a list of all casualties by military specification serial number was prepared and submitted to the commanding officer of the RCT. This list had been kept up to date as men became casualties and lost to duty. By having the two men with me at all times I controlled their work and knew what each man was doing at all times.

On the Fourth Marine Division's second operation, which was in the Marianas Islands, we operated in a different way. During this operation we had one officer and four enlisted men take part. The officer and senior NCO worked in the RCT Headquarters and the other three NCOs were assigned one to each battalion of infantry. Their job was to keep the RCT Headquarters informed daily of losses within each battalion by military specification number and to keep the Landing Team Commanding Officer informed. With their reports being submitted daily I could provide the

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Commanding Officer with the information needed as to replacement requirements. Two of the men landed with me on D-day, as was the plan, but the other two were kept aboard ship until approximately D plus 8.

Shortly after landing on D-day the Regimental Adjutant became a casualty and I assumed this additional duty as required. While performing duties as the adjutant, and having only two classification men ashore in the battalions, the classification work was sadly neglected. On or about D plus 8 the other two classification men had completed their duties aboard ship and joined us. They were employed in compiling reports of our losses and replacement needs. By approximately D plus 12 a captain joined our organization and relieved me of the duties of adjutant, permitting me to return to my job as classification officer.

On or about D plus 15 we had compiled a complete record to date of what each battalion was short by military specialty number. I received concise and accurate reports from the men assigned to the battalions when the means were available to forward them.

The original plans were well founded but as it developed we encountered difficulty in trying to do our job. The first thing wrong was that I did not have control of the men in the battalions. The men were well versed in their duties and wanted to perform the job that was assigned to them. Due to existing exigencies one was assigned duty as a rifleman and another was used on various combat patrols. The fact that all three men have been recommended for the Bronze Star is in itself proof of the fact that they performed in a satisfactory manner. But our primary interest is to keep a man in the work for which he is best suited. If we are not used in our own job, the purpose of personnel classification is being defeated.

During the Marianas Islands operation one NCO remained in the rear echelon to maintain 940A and 940B cards and take care of the classification section's functions. The man did a wonderful job, but there was far more work than one man could do, so he had to obtain assistance from men who knew very little about this type of work.

My suggestion for the operation of personnel classification in the field under combat conditions is as follows: While in the rest camp one man should be assigned to each battalion, in addition to the officer in charge and one man in the Regimental headquarters section as the Tables of Organization calls for at the present time. However, prior to embarkation all 940 cards and classification personnel should be returned to Headquarters and Service Company. One officer in charge and two enlisted men should go in the forward echelon and the two remaining enlisted men retained in the rear echelon to handle classification admin-

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istrative duties and maintenance of all 940 cards. The forward echelon should be armed with as many blank forms as they may need and a complete up to date roster of the RCT, including military specialty numbers. On landing, a complete record should be kept of specialties lost in each company, the report to be available to the RCT Commander at all times. The classification officer should work with the adjutant, so in case either should become a casualty the other will be familiar with the job and can assume the duties as required. Every record or report handled by the adjutant and classification officer should be brought to the attention of both the adjutant and classification officer. This system is being used within this regiment, and has produced the desired results.

Twice during the Marianas Islands operation we received replacements. We divided the specialties and sent them where they were most needed. Any work that can be done by a classification man in a battalion can be adequately handled at the regimental CP. If men should be assigned to the battalions, you have no one to replace a casualty should one occur. But if you have two men and they are both in the regimental CP they can easily take care of the work and can be controlled by the classification officer. When replacements are joined they should be divided into groups for each battalion and also broken down into each company as they are needed to equalize the strength of the units. This work can be handled by the officer and two enlisted men at the regimental CP, and a roster be sent with the men to the battalion for assignment purposes. On the roster by each man's name should be the letter of the company he is to join and the duties to which he is to be assigned. This work is made possible and practicable by the 3″x5″ casualty card that is sent to the regimental adjutant from the battalion as soon as the casualty occurs.

Classification can be used to excellent advantage by the Marine Corps as described above, but where classification personnel are to be used as riflemen, runners, grave registration personnel, first sergeants, casualty personnel and liaison officers, their usefulness as classification specialists is lost. Should the necessity arise and a classification man be needed to perform other duties to help keep his unit from suffering from loss of a certain person, he should do his best to fill the job. However, if he is not permitted to do his own work at any time he should be left in the rear echelon and used there.

One officer and two enlisted personnel in the forward echelon and two enlisted personnel in the rear echelon for administrative duty should adequately handle the classification work of a Regimental Combat Team.

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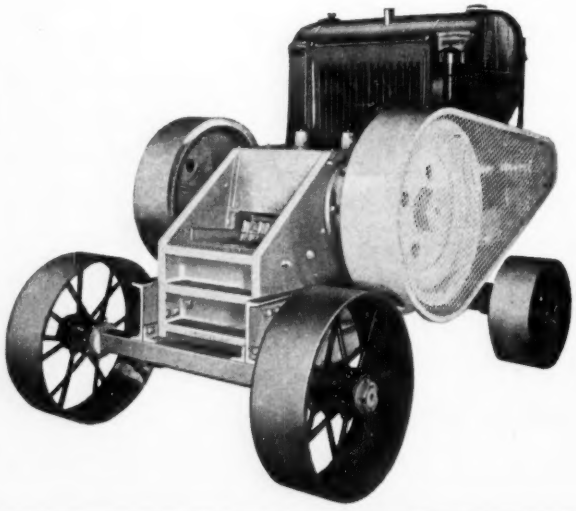

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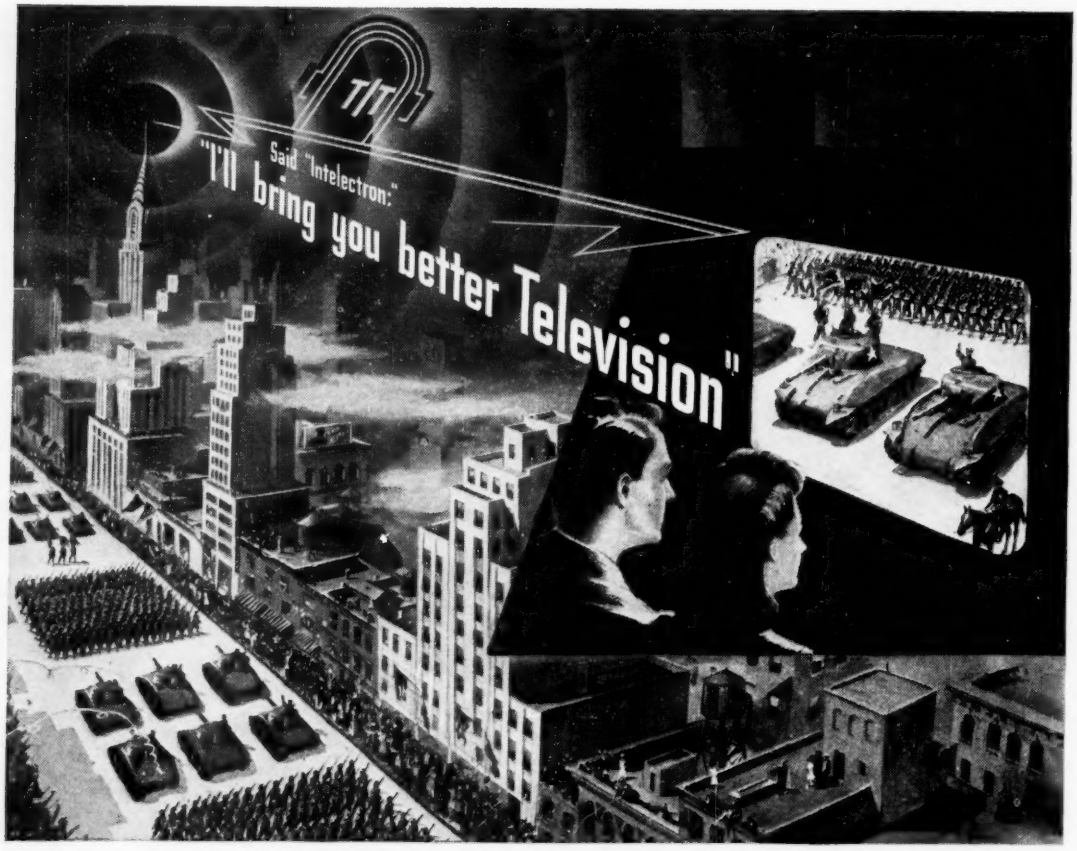

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Merchant Shipping Losses of Allies and Neutrals

A summary of merchant shipping losses suffered by the Allies and neutrals from the beginning of the war through 1943 has revealed a total loss for that period of 5,758 vessels, aggregating 22,161,000 gross tons. The following figures, with weights shown as gross tons in thousands, have been released by the British government and include losses from September, 1939, through 1943.

	British		Allied		Neutral		Total	
	Ships	Weight	Ships	Weight	Ships	Weight	Ships	Weight
1939	158	498	17	90	148	347	323	935
1940	728	2,725	201	822	416	1,002	1,345	4,549
1941	892	3,047	344	1,299	183	347	1,419	4,693
1942	782	3,695	987	4,394	90	249	1,859	8,338
1943	361	1,678	388	1,886	63	82	812	3,646
Totals	2,921	11,643	1,937	8,491	900	2,027	5,758	22,161

A report from the United States War Shipping Administration reveals that the United States, although a neutral, also began to lose shipping in 1939. United States' losses totaled 753 vessels, aggregating 3,311,000 gross tons.

In the period covered by the announcement, construction of ships by the United States roughly offset the losses sustained.

Problems Encountered in Aviation Administration

From experience gained as an aviation first sergeant overseas, I have arrived at the definite belief that the last frantic hour when your squadron receives the call to stand by for shoving off to an overseas base will pay dividends if you bear certain things in mind. You will be allotted a certain amount of space in which to carry material to maintain your office for a period of time extending from six months to two years. If you take the right things in that space, you will be saved later hours of worry and frustration.

In the first place, you should have on hand a good supply of articles difficult to obtain overseas. These include mimeograph stencils or payroll-size carbon papers, and, above all, your typewriters, duplicating and adding machines. You should have some clerk in your office who has qualified himself in typewriter repair at your base typewriter shop. Typewriter parts to replace those most likely to wear out should be taken. A good supply of fresh ribbons and carbons should be on hand, as well as sufficient stapling machines and plenty of staples. Legal size mimeograph paper will be needed in large quantities. And there should be thumb tacks, scotch tape, clip boards, binders, an extra punch, and several penholders with old-fashioned steel pens available for the time when the fountain variety will succumb to the climate. A small rubber stamp outfit, with interchangeable type, will be found most helpful, as your squadron or unit may be transferred, making obsolete treasured factory-made marking devices. It also is a good idea to stock up on gummed reinforcements, filing, and index cards, bound books (preferably record ruled), file folders, stamp pads, and other items. You cannot rely upon the Material Department for these things. Stocks of such supplies have a way of rapidly vanishing overseas.

Of course, common sense and shipping space dictate that supplies be held to a minimum, and this requires planning. Many of the common items, such as typewriter paper, the ordinary sizes of carbon, ribbons and others, are available in limited quantities from supply depots overseas.

Locale of your overseas base will be an important factor in determining what materials to prepare. In the southwest Pacific, for instance, we found the climate caused envelopes to stick together, rubber stamps to atrophy, and mucilage to refuse to dry. In addition, delicate machinery rusts overnight, inks thin and change color, mimeograph rollers swell and sometimes melt, carbon paper curls up, and rats sometimes gnaw the bind-

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ings from service record books. Some of these climatical problems can be solved by having your rubber stamps cut extra deep and cleaning them with a non-petroleum base fluid. A few tubes of ordinary model airplane cement can replace mucilage that refuses to cooperate. Your clerks should be cautioned constantly to cover their machines at night, avoiding saturation with dew. In the matter of envelopes, unoccupied hours could be well used in preparing a special overseas supply by inserting waxed-paper strips between flap and body. Stout binding tape should be secured for repairs to service record books.

And, lastly, the first sergeant, whether in aviation or the line, must remember the dangers involved in unwise packing. A bottle of ink can ruin an entire supply of valuable forms. Items should be split between boxes, so that if one is lost there will be no completely empty space where some vitally-needed thing should have been. Items for immediate need, such as pay and personnel records, morning reports and muster roll data, should go on board last and should be convoyed.

These suggestions have been given as the result of experience as a first sergeant overseas. Each first sergeant knows his own peculiar problems, and from that knowledge he should be able to project a fairly accurate picture of what his difficulties will be when his job takes him ten thousand miles from a stationery store.—1ST. SGT. KENNETH E. GOLDTHWAITE.

Footnote From France

Fifty per cent of the German arms and equipment captured by American troops in France and the Low Countries will soon be used against the Nazis. Some of the equipment is the latest and best turned out by German, French, and Russian factories, but there is also a polyglot collection of material looted from the countries with which the Nazis have been at war. Among the weapons are Russian, French, Austrian, Czechoslovakian and Polish rifles, some of them dating back to 1897.

Tanks and cars of all kinds have been captured in great numbers, and are being reconditioned by the Army Ordnance Department. Among these are former German heavy, medium and light tanks, trucks, command cars, reconnaissance cars, scout cars, staff sedans, motorcycles, half-tracks, and even the midget, track-driven, explosive-carrying "doodle bugs" which the Nazis sent against the American lines by remote control.—War Department.

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Some Facts Concerning Japanese Soldiers and Equipment

The Office of War Information has issued statistics and facts concerning the Japanese soldier and his equipment that are further blows against any "easy Pacific war" theorists who may be left after three years of war with Japan. The OWI estimates the present Japanese army as totaling 4,000,000 men, of whom 2,000,000 are in China. More than 250,000 Japanese soldiers now are isolated in island pockets, removed from battle, relief, or rescue. Japanese manpower is not depleted by any means. The Japanese can equip and train 2,000,000 more reserves without seriously affecting war production manpower, and this figure does not include the added millions who might be "recruited" from subject nations.

The Japanese soldier is described as a good fighting man, and no stupid, insensate peasant. He was selected for his work at the age of eight on the basis of physical and mental fitness, and his training began then. His education, comparable to American two-year high school median level, is the same as the American soldier's average education. In addition, from forty to fifty per cent of Japanese soldiers speak English—an effective snare into which American troops sometimes have fallen. Referring to this lingual ability, the OWI pointed out the fallacy of believing that Japanese cannot pronounce the letter "r." It is the Chinese, not the Japanese, who say "solly" instead of "sorry," popular cartoonists to the contrary. Japanese have difficulty with the letter "l."

Reared under a feudalistic system in which he plays a predestined part, the Japanese soldier has the oriental's attitude toward human life. His suicidal charges, his hara kiri rite, are representative of oriental subordination of the value of human life. And, contrary to frequent belief, the Japanese are not stolid. They are an emotional people trained to a rigid repression which does not always work. Another myth concerning the Japanese which has no basis in fact is the belief that the Nipponese are imitative. Japanese inventiveness is considerable, and is limited only by a scarcity of technically trained manpower and machine power. His feudalistic social system provides the only basis on which the Japanese soldier cannot meet the American soldier on terms of equality. The Japanese are lacking in individual initiative. Their social system, devising an anthill niche for each person, handicaps operations when personal initiative is needed.

The cleverness of the Japanese in devising ruses and booby-traps for the unwary is known by every

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man who has been in combat against him. His thorough training, somewhat narrow, arbitrary and inflexible in its system of indoctrination, often has inhibited originality of thought and action, but, given orders, he can carry them out. Pay of the Japanese soldier is astonishingly low. A full general receives a salary of 550 yen monthly, which is comparable to about $126.50 in United States money. A second class private, the lowest rank, receives a salary amounting to about $1.38 a month.

In the matter of equipment, the Japanese have been found weak in variety, concentration, and marksmanship of artillery. Their tanks, ranging from a vehicle weighing less than five and a half tons to heavy tanks of over twenty-two tons, are designed primarily for use, and certainly not for the comfort or safety of their occupants. Their engineers are well-equipped and are armed as infantry. By American standards, their trucks are poor, but they developed in Manchuria a small scout car similar to our jeep. Japanese military medical equipment is practical, although not always modern. No evidence of the use of blood plasma has been found.

The War Department is quoted as stating that the most important lesson the Japanese have taught us in this war is that "there is no such thing as impassable terrain, even in the jungle."

Chewing Tobacco

I recently talked to a lady who is interested in the donation of recreational supplies to servicemen. In the course of the conversation I suggested plug tobacco. She was pleasant in her reply but it was generally to the effect that the ladies of America did not exactly approve of the idea of a smart looking Marine in uniform spraying tobacco juice on the sidewalk. I said nothing further but could not help thinking. Perhaps if the good ladies were obliged to spend just one night in a wet foxhole and were prohibited from lighting up, they too might relish a chew of Brown's Mule.

The fact is, there are times when chewing tobacco is the only 24-hour, all-purpose article to satisfy a man's craving for tobacco. On Saipan and Guadalcanal, I found the chewing tobacco situation anything but satisfactory. It used to burn me up on Guadalcanal to get two ten-cent packages of Beechnut as a company ration, and see a hundred men line up to get it.

Cigarettes were plentiful. In fact there were more than we needed. But keeping them dry, together with matches, was no easy thing to do. They would become wet and soggy, get crushed, and in general become useless. Too, the man who

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lights up at night doesn't last long in jungle warfare. And a lot of time is spent on the decks of darkened ships where smoking is also tabu. At such times, chewing tobacco is very much in order. The boys want it, and while there is still war to be fought they should have it.—W. A. K.

Compulsory Language Course

Natives of Guam were told they faced deportation to other islands unless they learned the Japanese language in four years—but the invaders' compulsory education plan was a great failure.

A Guamanian woman told of the Jap plan to make their language the dominant one on the island.

"We were given four years to learn the language," she revealed. "The Japs tried for two years and five months to teach us. They brought in teachers from Saipan (which for many years had a large Japanese civilian population) and taught Japanese in schools the Americans had established. I was a principal in one of the schools before the Japs came, on December 10, 1941, but I quit school work then. The Japs said if we didn't learn their language in four years they would take us away from our homes and to other islands."—T/Sgt. William K. Terry, Marine Corps Combat Correspondent.

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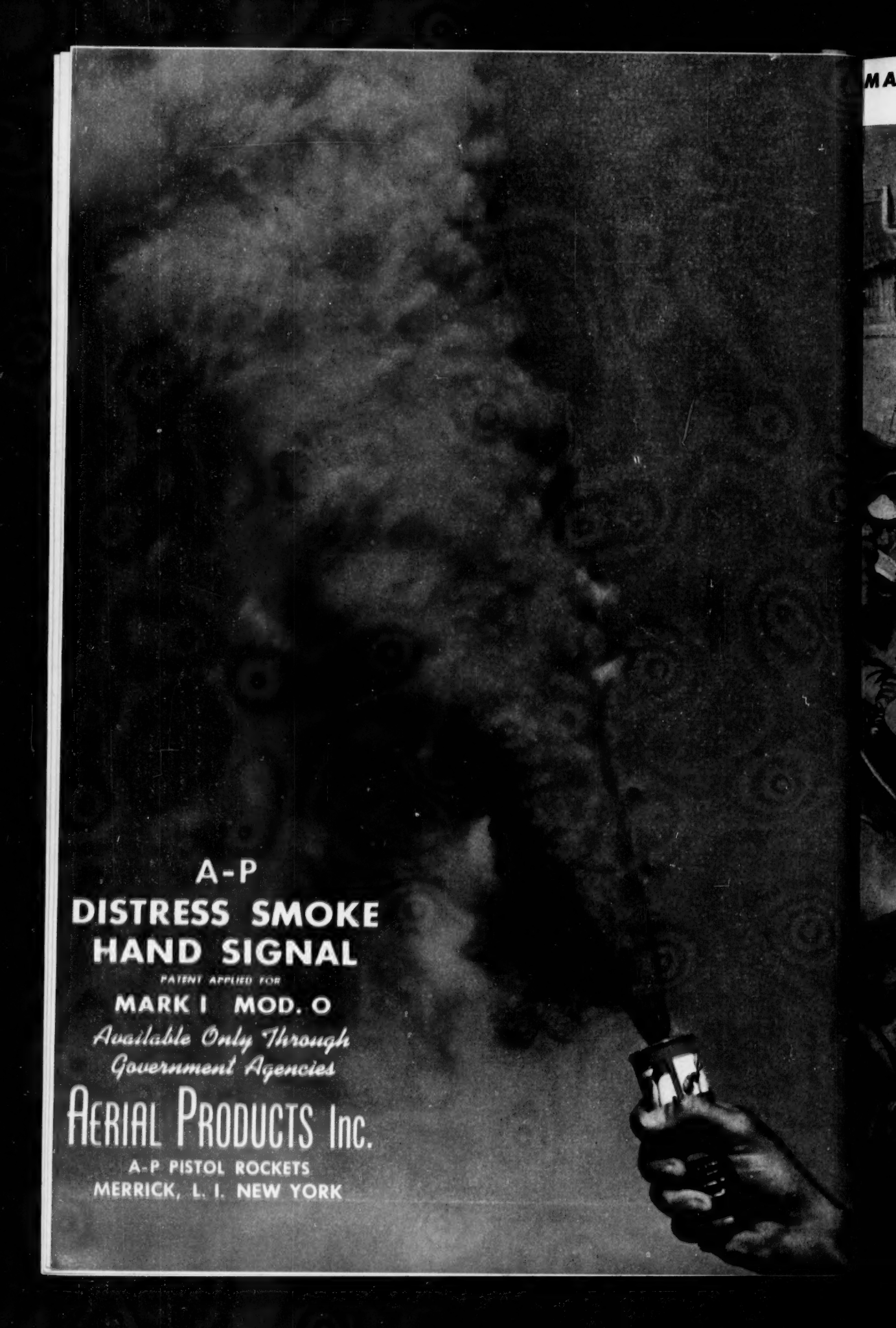
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